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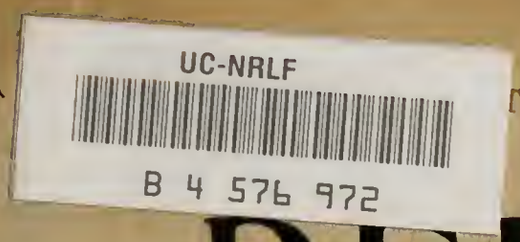
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REPORTS

OF THE

MOSELY

INDUSTRIAL COMMISSION

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MOSELY INDUSTRIAL COMMISSION

"From John Burns. Nov 7 1902"

TO THE

UNITED STATES OF AMERICA,

OCT.—DEC., 1902.

Reports of the Delegates.

Price 6d. nett (post free, 9d.).

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Mosely Industrial Commission

To the United States of America, Oct.-Dec., 1902.

HELP FROM THE BOARD OF TRADE.

In my travels round the world, and more particularly in the United States, it became abundantly evident to me that as a manufacturing country America is forging ahead at a pace hardly realised by either British employer or workman. I therefore came to the conclusion that it would be necessary for the workers themselves to have some insight into these developments, and I decided to invite the Secretaries of the Trades Unions representing the principal industries of the United Kingdom to accompany me on a tour of investigation of the Industrial situation across the Atlantic.

Through the courtesy of Sir Alfred Bateman, K.C.M.G., who expressed himself much interested in the idea, I obtained an interview with Mr. Gerald Balfour, the President of the Board of Trade. That gentleman not only assured me of his entire sympathy, but desired that his department should render me every assistance possible. To Mr. H. Llewellyn Smith (of the Board of Trade) I especially owe a deep debt of gratitude for his efforts in gaining me information and letters of introduction calculated to be of use to myself and the delegates. Mr. Burnett also rendered most valuable assistance in selecting the Unions to be invited, and with general advice—he being personally conversant with trades unions generally in this country; whilst Mr. Henry Fountain supplied me with a large amount of valuable information showing the advances made in late years by the industries of the United States, which has been utilised in the appendix printed at the end of the complete report of the Commission.

PREFACE.

As I was the originator of the Industrial Commission to the United States, British workmen and the public generally will desire to hear my personal views. Before giving these, however, it is both my duty and pleasure publicly to express my thanks to the American nation at large for their courtesy, hospitality, and readiness to throw open their factories to the inspection of my party, and to offer every possible facility to us to pursue our investigations. To the National Civic Federation of New York I especially wish to extend my thanks for help given in all directions, and for piloting my delegates throughout the United States; whilst the American Federation of Labour received their brother workers most cordially, and were ever ready to assist them as far as possible. Both masters and men in the States were lavish in the hospitality showered on us, even to an extent that perhaps may have interfered somewhat with our investigations. It was, however, always clearly understood that any one of the party who preferred to go on with his work, instead of sight-seeing, was welcome to do so. Few, however, availed themselves of the opportunity, though some were exceedingly studious and evidently bent more on work than pleasure. Every delegate was given full opportunity of going to any

centre he wished, to investigate his special industry without hindrance as to time or expense and no dates were arbitrarily fixed by me for the return of any of the party to England. I desired that they should investigate fully and take their own time.

The delegates left England towards the end of October (1902), half of them going to Canada first. The others, after making a short stay in New York, proceeded with me by special Pullman car to join the rest of the party, in order that all might have an opportunity of visiting the wonders of Niagara.

The task of assimilating so large a problem, with representatives of so many diverse trades accompanying the Commission, and in so short a space of time, was naturally difficult; especially when it covered so vast an amount of ground as indicated by the list of questions which were handed to the delegates and which they were asked to answer; my own summing up, therefore, must necessarily be somewhat crude. The delegates themselves have been asked to write their reports in their own way; and though it has been found necessary, from considerations of space, to omit or curtail the descriptions of scenery, notes of travel, etc., which some of them gave, their opinions on points concerning their own industries have in every case been preserved untouched, and each of the reports in its final form, as printed, has been passed and approved by its writer. No pressure having been brought to bear upon them in the formation of their opinions, the papers should be doubly welcome to their own special societies, being their own impressions, unrestrained by any outside influence whatever. Reports were received from all but Mr. Macdonald. The few remarks I myself now offer are made simply in the capacity of an ordinary business man, who has spent some little time in the study of economic questions from a practical standpoint. My personal conclusion is that the true-born American is a better educated, better housed, better fed, better clothed, and more energetic man than his British brother, and infinitely more sober; as a natural consequence, he is more capable of using his brains as well as his hands. Many of the men, however, holding leading positions are either English or Scotch, and the American himself is justly proud of his British descent.

One of the principal reasons why the American workman is better than the Britisher is that he has received a sounder and better education, whereby he has been more thoroughly fitted for the struggles of after life; and I believe all my delegates were themselves immensely impressed with the generally high standard of education in the United States—a standard it would be well for our own nation to copy as far as practicable.

In my previous trips to America I had been forcibly struck by the up-to-date methods of production there, both from a business standpoint and as regards the equipment of their workshops. The manufacturers there do not hesitate to put in the very latest machinery at whatever cost, and from time to time to sacrifice large sums by scrapping the old whenever improvements are brought out. One man in charge of a large department said to me: "One of the reasons of our success is the readiness of all our men to drop existing modes of production as soon as it is demonstrated that there is something better." Labour-saving machinery is widely used everywhere and is encouraged by the unions and welcomed by the men, because experience has shown them that in reality machinery is their best friend. It saves the workman enormous manual exertion, raises his wages, tends towards a higher standard of life, and, further, rather creates work than reduces the number of hands employed. If there is one lesson that in my opinion has been amply demonstrated to the delegates on this Commission, it is this fact as to machinery—not, of course, that I think they themselves have ever opposed it (as that day is happily fast passing away amongst intelligent men), but they must have been pleased to see such positive proof of what they have been for long past trying to impress on the rank and file in their respective unions.

My own observations lead me to believe that the average American manufacturer runs his machinery at a much higher speed than is the usual practice in England—in other words, for "all it is worth," and the men ably second the employers' efforts in this direction. Do the workmen as a body do the same here? I think the answer must be in the negative. Why, then, is it that the systems are so different? In England it has been the rule for generations past that as soon as a man earns beyond a certain amount of wages, the price for his work is cut down; and he, finding that working harder or running his machine quicker (naturally a greater strain) brings in the long run no larger reward, slackens his efforts accordingly. If this be the case, can we blame the workman? Let the employer look at the matter fairly, and put himself in the man's place, and say whether he might not be inclined to act in the same way. In the United States a different system prevails, and the manufacturers rather welcome large earnings by the men so long as they themselves can make a profit, arguing that each man occupies so much space in the factory, which represents so much capital employed, and therefore that the greater the production of these men the greater must be the manufacturer's profit, a proposition more abundantly evident when it is remembered that the standing charges in any factory (always a heavy item) are practically the same whether the production per unit be large or small. I am convinced that British manufacturers, if they are to obtain the best efforts from their workmen, must come to an understanding with the Unions as to a fair piece price, from which there shall be no "cutting" when the men earn large wages. Such a system, I feel sure, is necessary if workmen are to be encouraged to use their best efforts and to look at the question broadly; such is only human nature. Machinery must be run at its highest speed, whilst the workers must feel that they are reaping the fruits of their labour, and that the fruits are secure not only for the present, but in the future. In many trades, a joint committee of employers and employés meet periodically to settle rates for piecework by mutual consent, and if such an arrangement were adopted all round, I am sure it would be found beneficial; and this is what is practically done in all American industries.

Of course the true solution of the whole problem is profit-sharing in some shape or form, and it is towards this goal that I feel both masters and men alike should turn their eyes. It is a difficult problem, but one that I am convinced can be solved in time. Capital and Labour are partners, and they must work as such. One could talk indefinitely on this subject, but space does not permit. However, as I have said, herein lies true industrial peace and prosperity. The Carnegie Steel Works are already commencing to put this into practice, whilst it is not unknown in this country, and I believe shows excellent results.

The United States is advancing by leaps and bounds. She is beginning to feel the beneficial effects of the education of her masses, and an enormous territory teeming with natural resources as yet but meagrely developed. In the latter respect she has been more than blessed, and her natural advantages are bound to make her not only the leading manufacturing country of the world (a position she may already be said to have attained), but must place her in the same position relatively that England herself occupied some fifty years ago. It is more than necessary that both Capital and Labour should bear this point well in mind. At the present time the home market of the United States is so fully occupied with its own developments that the export trade has as yet been comparatively little thought of; but as time goes on and the numerous factories that are being erected all over the country come into full bearing, America is bound to become the keenest of competitors in the markets of the world. That already she has her eye on the export trade is plain to every one except the wilfully blind; but at present she is only getting ready. The acquisition of so large a proportion of the Atlantic carrying trade is in itself an object lesson. When America wishes

to export goods she intends to dictate freights, which she could not do if she had no mercantile marine of her own. The profits of the shipping business are to her quite a secondary consideration at present, compared with the ability to rule freights when it suits her to do so. It must be remembered that the American manufacturer and financier looks well ahead, and is prepared to make large present sacrifices for the sake of future gain.

A cutting from an American paper has been sent to me, in regard to the system of payment of workmen by results. I give it for what it is worth, and do not vouch for its accuracy; but it is a powerful illustration of the difference a little extra production will make both the profit of the manufacturer and the wages of the men. It is from an article in a recent number of the *Contemporary*, by Major C. C. Townsend. At a certain great steel works not far from New York, he says, the men are paid by results, and if these results are above the normal, the pay rises abnormally. "The usual number of pourings obtainable from a furnace in each run is eleven, but by the closest attention to every detail, by incessant and scientific stoking and work of every kind, it is occasionally possible to obtain twelve pourings. The wages earned by the men at the furnace when eleven pourings are obtained are 40 dollars, but if twelve pourings are obtained they are 80 dollars." Such a system is the key-note of American success. I am not sure how far my delegates have realised that it is in the extra speed at which machinery is run, the high specialisation of work whereby each man becomes an expert in his particular branch, which in itself means efficiency and an increased output, the economy of hands in attending machines, and the excellent organisation of the factories whereby the smallest item of time and labour are saved, that make all the difference between large profits and none, and a high rate of wages for the men as against the comparatively low standard known in this country.

How is it that the American manufacturer can afford to pay wages 50 per cent, 100 per cent, and even more in some instances, above ours, and yet be able to compete successfully in the markets of the world? The answer is to be found in small economies such as mentioned above, which escape the ordinary eye. The instance given, of normal wages being doubled for one extra pouring in a certain steel works beyond the usual eleven, is an illustration. The men earned twice the amount, and the manufacturer also makes a profit. In reality the twelfth pouring costs him nothing except the bare price of the raw materials; and the same is true in all industries and under all conditions.

That the American workman earns higher wages is beyond question. As a consequence, the average married man owns the house he lives in, which not only gives him a stake in the country, but saves payment of rent, enabling him either to increase his savings or to purchase further comforts.

Food is as cheap (if not cheaper) in the United States as in England, whilst general necessaries may, I think, be put on the same level. Rent, clothes made to order, and a variety of things, including all luxuries, are considerably dearer. Luxuries, however, do not enter very much into the every day consumption of the average working man in this country, and if in the United States he can get them at all (even though he have to pay a high price for them) that is surely an advantage by comparison.

The American workman drinks but little, and his house is usually well furnished and fitted with luxuries in the way of bathrooms, laundries, hot water and heating systems, and other items mostly unknown to the British workman.

One of the points the delegates were invited to investigate was whether or not the workman in the United States "wears out" faster than the Englishman. Personally, I think not. It is generally admitted that the American workman, in consequence of labour saving machines and the excellence of the factory organisation, does not need to put forth any greater effort in his

work than is the case here, if as much. He is infinitely better paid, therefore better housed, fed, clothed, and moreover is much more sober. Under such conditions he must naturally be more healthy, a proposition that I think cannot be denied. It follows, therefore, that if his working life is shorter, other causes must be sought, outside the factory, to account for it. I give this as a broad hypothesis, and did space allow, I could go more closely into the reasons *pro* and *con*; but one reason in particular appears to me to be that the American workman is able to leave his factory at an earlier age, because by his temperate habits and the high rates of wages he receives whilst there, he is not under the same necessity of working up to the very end of his life, as is the case in England. In American factories, speaking generally, great attention is paid to the necessities and comfort of the workers. Separate lockers (of which the workman has the key) are provided for working clothing; consequently the man can arrive at and leave his work well clad, changing at the factory. The shops are usually very well ventilated, although it is customary to keep them at a temperature many degrees above the average in this country; but this is liked or would not be done, and is in fact a national characteristic; and there is after all a good deal to be said in favour of being able to walk into a factory which is well warmed, and where the tools do not freeze the hands as soon as touched. Excellent lavatories with shower baths, etc., and many other comforts for the employés, are the rule rather than the exception in the large factories; and in fact the American manufacturer has realised that if he wishes the best results from the hands he employs, he must provide for their comfort and cleanliness. It is not a question of philanthropy, but of practical business.

One point that has struck me with enormous force, as I believe it has all the delegates, is the close touch and sympathy between master and man, which is carried a step further in the enlistment of the men's good offices to improve factory methods. Suggestions are welcomed (usually a box is provided for their reception), the more so because the American manufacturer has realised that it is not the man sitting in the counting-house or private office who is best able to judge where improvements can be made in machine or method, but he who attends that machine from morning to night. Hence the employer asks for suggestions for the general conduct of the business as well as for improvements in machinery. These are freely offered, and periodically examined, and if entertained, the originator of them usually receives at once a small money gift, whilst for those found practical upon full trial and ultimately adopted, he is given handsome remuneration in the shape of a portion (or sometimes the whole) of the resulting profit, promotion, or purchase outright of the idea by the employer. In short, the man feels that the work of his brains will handsomely benefit himself. Is it any wonder, therefore, that American machinery is continually changing and improving, that the evolution of methods is ever and rapidly going on? Every hand in the factory, man or boy, woman or child, is constantly striving to discover some improvement upon the existing *régime*, simply because it means profit to themselves. Has such a system ever been tried here? Except in quite isolated cases, I think not. As a rule the British employer hardly knows his men, seldom leaves his office for the workshop, delegates the bulk of his authority to a foreman whose powers are arbitrary, and who, if any of the men under him show particular initiative, immediately becomes jealous and fears he may be supplanted. Hence as a rule a workman making a suggestion to the foreman (the proprietor himself is usually not accessible at all) is met with a snub, asked, "Are you running this shop or am I?" or told, "If you know the business better than I do you had better put on your coat and go." Such a system must be dropped, and that immediately, if England is to hold her own industrially. We must encourage initiative on the part of the workers, and be prepared to pay for it fairly when shown, allowing their brains and inventive powers full play and due reward, as is done in the United States.

One of the questions that will doubtless be asked is, how can this be done without creating jealousy in the workshop? For answer I will explain the American system. Whoever engages the hands has to give in a list of all those taken on to the proprietor, to whom, at a given hour on his first day, each new man has to present himself, when a number is allotted to him and entered in a private register kept under lock and key by the head of the firm. In making a suggestion, the workman does not affix his name, but puts his number only to it; consequently, at the periodical examination, the foreman does not know from whom any particular idea comes, and there is no question of jealousy or possibility of discharge for the man who shows too much initiative. When any particular suggestion has been adopted, the position of the originator has become an established one, and should its source become known, it in no way hurts him but rather the reverse. Manufacturers here would do well to give this plan a trial.

Another "Yankee notion" that I found excellent was that of a record kept in some factories of each man's general character and work. It is thereby known whether he is steady, sober, industrious, and an efficient workman; and should he at any time make a mistake, and the hasty feeling would be to discharge him, reference is first made to the "record book" by the heads of the firm; when it is of course often found that in getting rid of him they would be sending away one who in the past had done excellent service, but who for some reason or other had happened to make a slip. His position is accordingly reviewed somewhat on the lines of an appeal to a higher court in law, and he is judged accordingly.

Fuel and raw materials are much the same price in the United States as in Europe, and it therefore cannot be claimed that she has very much advantage on this score; but facilities for transport, both by rail and water, are undoubtedly both better and cheaper, and I think one of the points absolutely necessary to the success of British industry is a close examination and revision of our railway rates as against those of our competitors. I believe some of the delegates have drawn comparisons unfavourable to the United States in the matter of municipal government; and certainly the condition of the streets there cannot be compared to ours. It is but fair, however, to state that the rates in American cities are but a mere fraction of what we have to pay; and, personally, I would far rather put up with the discomfort of inferior attention to the streets, and let the money be spent on public education. The result in the future would, I believe, be that the extra money could then be afforded with ease to improve the streets, by reason of the higher standard of the working man so attained enabling him to do a better day's work and earn higher wages, a part of which he would not begrudge to the rates.

Restriction of output and the "ca' canny" principle were discussed at the meeting of the National Civic Federation in New York, and in many other cities. It was denied *in toto* by the whole of my delegates, and I myself do not pretend to offer any opinion; but Mr. Carroll Wright, the Labour Commissioner at Washington, told them bluntly that he would shortly be publishing statistics that would prove, in some instances, a restriction of output. I trust that the delegates' denials were correct; but even assuming that there is a restriction, I would ask what inducement there has been in this country in the past to the workman to put forth his best efforts? Usually he is snubbed for suggestions, and if he runs his machine to its fullest capacity he is no better off in the long run, because the price paid him for his work is cut down accordingly.

In the United States one hears a great deal against Trusts (as there known,—or what we term large Corporations), but, personally, I am rather inclined to welcome these concerns, because large organisations, with ample capital, are best able to compete in manufactures on the most economical lines, can fearlessly raise wages within given limits, are in a position to combat

unhealthy competition, can provide up-to-date machinery *ad libitum*, can erect sanitary and well-ventilated workshops, and generally better study the comfort and wellbeing of the workman than small individual manufacturers struggling against insufficient capital and old machinery. It is in the organisation of Capital on the one hand, and the thorough organisation of Labour on the other, that I believe the solution of industrial problems will be found; and it is infinitely better for manufacturers to have to deal with well-organised labour than with a heterogeneous mass of workers pulling in different directions. As President Roosevelt said to the delegates when he met them in Washington, "It is idle to protest against the inevitable tendency of the times towards corporations and unions. It is worse than folly to take exception to unions as such. The line should be drawn at conduct, not at combination."

On our travels I took with us a professional photographer, who took photographs of all items of interest for the purpose of preparing lantern slides. These will be found useful later on for lightening and lending interest to lectures that the delegates will have an opportunity of giving to their fellow-workers in various parts of the country. In the early spring these will commence (I, myself, hope to take part in them), and will continue almost indefinitely so long as they are found to be useful. This will be a practical way for the delegates to bring home to the members of their unions and others, the lessons they have themselves learned across the Atlantic.

The working of the National Civic Federation of New York greatly impressed and interested my delegates, and this organisation largely makes for peace in the industrial world of America. All those of our party who were present in New York at the time this subject was ventilated signed the following document expressing their desire to see some similar organisation established here:—

> In the course of our travels and investigations in the United States the excellent results achieved by the National Civic Federation of America have been brought to our notice, the Federation having been successful, among other things, in bringing capital and labour into closer touch, thus providing a practical solution of many of the difficulties and vexed questions that arise between the two.
>
> One of the most important features of the Federation is the section whose duty it is to get information of the first sign of impending trouble, and in the earliest stages of a dispute to step in for the purpose of bringing the contending parties together at a round-table conference before any breach has actually taken place and before either side has assumed a position from which it can recede only with difficulty, and, in our opinion, it would be of benefit to both workers and employers were some similar organisation brought into being in Great Britain.
>
> In expressing this view we do not desire in any way to interfere with the bodies which already exist for mediation and conciliation in the Board of Trade, Chambers of Commerce, Trade Conciliation Boards, &c., or agreements between employers' associations and workmen's organisations, but, if possible, to establish a further means, not so much for the adjustment of troubles after they have arisen, as for their prevention.
>
> As representatives of our respective trade unions, it will be our duty on our return to our own country to place before our members the objects of this branch of the work of the Civic Federation, and we also hope to have the co-operation of other trade organisations, large and small, throughout the United Kingdom.

I see that it is said to have been stated by a leading trade-unionist at Bradford last year that "just as it is the object of the master to get as much work as he can for as little wages as possible so it is the object of the workman to get as much wages for as little work as possible." In this there is a great deal of human nature. Would it not, therefore, be wise to accept this as the proposition underlying the object of both sides? Let us strip ourselves of cant in this matter, and acknowledge the position, if such it be. Assuming the statement to be correct, does it not point to the necessity of all engaged in industry—masters and men alike—meeting periodically, discussing matters, and arriving at some understanding whereby compromises are made on both sides, and agreements entered into which as far as possible shall be lasting? Again, this shows the usefulness of some organisation on the lines of the (American) National

Civic Federation, by means of which "round-table conferences" shall in times of difficulty be the order of the day, especially in those trades where there has been hitherto no joint committee of employers and employed for mutual discussion and agreement.

In conclusion, I can only say that if we are to hold our own in the commerce of the world, both masters and men must be up and doing. Old methods must be dropped, old machinery abandoned. Practical education of the masses must be instituted and carried out upon a logical basis, and with efficiency. The bulk of our workmen are already both sober and intelligent, but with many of them there is urgent need for them to become more sober, more rational; more ready to adopt new ideas in place of antiquated methods, and improved machinery whenever produced, and to get the best possible results from a day's work. Manufacturers for their part must be prepared to assure their men a piece price that will not be "cut" when the latter's earnings exceed what has hitherto been considered sufficient for them. Modern machinery must be introduced, co-operation of the workmen sought, and initiative encouraged in every possible way. Without such a modernised system we cannot hope to compete with countries like the United States, which has this advantage, and is moreover blessed with natural resources such as we do not possess. Britain has, however, in the past led the world, and might yet continue to do so. The material is here. It remains for masters and men mutually to decide whether and how far it shall be utilised in the future.

A. MOSELY.

The Members of the Commission were—

MR. THOS. ASHTON, of the Amalgamated Association of Operative Cotton Spinners.
MR. G. N. BARNES, of the Amalgamated Society of Engineers.
MR. C. W. BOWERMAN, of the London Society of Compositors.
MR. W. COFFEY, of the London Consolidated Society of Journeymen Bookbinders.
MR. JAS. COX, of the Associated Iron and Steel Workers of Great Britain.
MR. H. CRAWFORD, of the General Union of Operative Carpenters and Joiners.
MR. D. C. CUMMINGS, of the United Society of Boiler Makers and Iron Shipbuilders.
MR. M. DELLER, of the National Association of Operative Plasterers.
MR. WM. DYSON, of the Amalgamated Society of Paper Makers.
MR. T. A. FLYNN, of the Amalgamated Society of Tailors.
MR. HARRY HAM, of the National Amalgamated Furnishing Trades Association.
MR. R. HOLMSHAW, of the Sheffield Cutlery Council.
MR. W. B. HORNIDGE, of the National Union of Boot and Shoe Operatives.
MR. THOS. JONES, representing the Midland Counties Trades Federation.
MR. G. D. KELLEY, of the Amalgamated Society of Lithographic Printers of Great Britain and Ireland.
MR. G. J. LAPPING, of the Amalgamated Society of Leather Workers.
MR. JAS. MACDONALD, of the London Trades Council.
MR. J. MADDISON, of the Friendly Society of Ironfounders of Great Britain and Ireland.
MR. W. C. STEADMAN, of the Trades Union Parliamentary Committee.
MR. H. R. TAYLOR, of the Operative Bricklayers' Society.
MR. P. WALLS, of the National Federation of Blastfurnacemen.
MR. ALEX. WILKIE, of the Associated Shipwrights' Society.
MR. W. H. WILKINSON, of the Northern Counties Amalgamated Associations of Weavers.

Mosely Industrial Commission.

Report by Mr. P. WALLS, of the National Federation of Blastfurnacemen.

In giving a report of my impressions of America, I am conscious of the difficulty, if not danger, of making general comparisons, and trying to draw conclusions. Our time was too limited, and the ground covered too great, to allow of a complete detailed inquiry into the industrial, economic, and social conditions of such a country as the United States of America. Needless to say, the Americans have a vast territory, most of it yet undeveloped. They have immense mineral resources, unparalleled waterways and railway communication. They have also all the energy and initiative usually to be found in a new country where every one has a chance in the race for wealth. All through the States we were received by both employers and workmen in a manner that was very gratifying. It seemed like a visit to old neighbours. The employers had nothing to conceal, and the workmen talked freely and gave information without reserve. The same spirit was in evidence at the schools and colleges.

I tried to make the best of the time at my disposal, and devoted it mostly to conditions of labour and modes of production. Of course, I tried to supplement this by inquiring into the system of education, and to getting as much knowledge as possible of the natural resources of the country. We visited elementary and technical schools, and two, perhaps, of their best technical colleges, the Pratt Institute, at Brooklyn, and the Armour Institute, at Chicago. Education is given unsparingly, from the elementary to the higher grade and technical schools. In the Northern States no child is allowed to leave school till it is 14 years old. An inquiry at what was said to be an average school in a working-class locality, elicited the statement that 50 per cent of the children remained at school until they were 15, and nearly 25 per cent until they were 16. At the technical college the full course of engineering is four years, and the junior course two years. Some go in for an all-round training, and others for special training in one subject. There can be little doubt that the average American lad gets a better education than the average lad in this country. There is an impression on the part of some of our employers that the practical workman is all that is required, but, surely, even the ordinary mechanic will be more intelligent and effective if his brain is cultivated and developed. (There seems to be a remnant left of the spirit that existed when George the Third wrote his famous letter to William Penn.) I do not mean that good mechanics are likely to be turned out by a technical school. The real training must follow in the workshop. Whatever may be said of the University man as a general manager, successful foremen and shop managers must come from the ranks. Education improves any class of workmen, even the common labourer. I believe that a foreman will admit that his task is always lightest with the best educated portion of his men. I am not so much enamoured with the idea of educating a youth so that more may be got out of him, and that he may be used in the mad race of national competition, as that he will be a better man, and have a higher conception of his duties as a citizen. Culture, refinement, and human sympathy seldom keep company with the gold-hunter. An educated people may, in time, come to think that the production of wealth by a nation should have a higher object than creating millionaires, but that time is not yet. We must, therefore, make the best of present conditions,

and in accordance with the nation's traditions, get to the front while the race lasts. Without education this is impossible. I am aware that there is a great awakening in this country on the question of higher grade and technical education. Schools and colleges are being enlarged; new ones have been opened lately, and others are in the course of construction, but it will be many years before the result can be felt in the workshop.

There seems little doubt about the Americans leading the way in highly specialised machinery. The American Locomotive Company's works at Schenectady, which cover 62 acres, have a mass of powerful as well as ingenious machines, each having its own special duty. They seemed to cut up iron, steel, and brass as wood is cut by a cabinet-maker. We were informed that they could turn out six large locomotives a day, or 35 in a week. Over 10,000 hands are employed. The General Electric Company's works at the same place, although not covering as wide an area, have even a larger number of machines, many of them portable, so that two or three can be brought round the massive parts of the large dynamos. Special machines are used for the production of every item in connection with electric power.

At the National Cash Register Company's place, at Dayton, there is a separate machine for every piece, however small, of the register. Many of these machines are obviously the product of a marvellous inventive genius, doing their work with more than human ingenuity, and only requiring to be fed through a tube with the brass or steel bar, from which the piece is made. Dayton is an enlarged edition of Bournville. In the rolling mills at South Chicago, Homestead, Youngstown, etc., the machinery is ahead of anything I have seen in similar works in this country. But I must be careful lest I tread on ground that should belong to others, and I had better get to the blastfurnaces, with which I am supposed to be best acquainted.

In outward appearance the construction of the modern American blastfurnace does not differ much from that of the English. It stands higher on its columns, and has a larger well or pot. The tuyeres are inserted at a higher level, and a larger number of them used. More water is used about the furnace bottom, but is not allowed to collect. The nozzles through which the blast is forced are wider, and a greater number of heating stoves per furnace are erected. This gives a larger heating surface, and admits of a higher pillar of blast being used, without reducing its heat. The degree to which the blast is heated is about the same as at the most modern works in this country. In most places the gas is washed between leaving the furnace and reaching the stoves or boilers. The Lake Superior ores contain less silicon, and from five to seven per cent more iron, than the hematite ores used in this country. I examined samples of coke, which did not seem to me to be equal to "Best Durham."

American blastfurnacemen are not subjected to the same physical exhaustion as those employed in England, unless when it may come from climatic causes. The use of labour-saving appliances makes the work comparatively light. There is no casting in the sand, or what is termed pig-bed work. The full cast is taken in ladles to a large mixer, prior to being taken to the rolling mills. When the mills are not running it is taken in the same way to a casting machine. The tapping hole is stopped by a hydraulic machine, but not with the blast on, as I have seen stated. In each instance the blast was off from six to ten minutes. No casting beds being used, there is not the usual congestion at the front of the furnace. This reduces the danger, and gives the men more liberty to work. A greater number of men are employed at the front side than is usual here. At the bunkers the tipping can be done expeditiously as the wagons are large, carrying from 45 to 50 tons. The appliances for dropping the bottoms are ingenious and easily worked, and the ends and sides of the wagon slanted so that the material drops through

freely. The filling of ore, coke, and limestone from the bunkers to the barrows is done by chutes. The pressing down of a lever allows the required amount of material to run into the barrow. The chutes are close to each other in a long range on the near side of the bunkers.

Where the Lake Superior ores are brought direct to the works, the unloading of the ships is done by an electric crane, which lifts the ore from the ship's hold with an automatically arranged vessel resembling what is known, generally, as a "steam navvy," and deposits it in a depôt within reach. It is taken from there by an overhead electric crane to the bunkers. There is no manual labour used except to heap the ore in the hold within reach of the crane when the latter part of the cargo is being cleared out.

Mechanical appliances have been introduced around the furnace, evidently not so much with the view of dispensing with labour, as making it lighter and expediting the work. The skilled men employed at the furnaces are mostly British; the unskilled are Poles, Scandinavians, and Italians—the majority Italians, men of small stature and poor physique. In the barrow-filling department I did not see a man who could work beside a British blastfurnaceman for a single shift. Considering that blastfurnacemen in the North of England work three shifts of eight hours, and that the American works two shifts of men on 12 hours, the former are as well paid as the latter. In most instances the 24 hours' money just about balances. But if Lincolnshire, Derbyshire, South Stafford, and South Wales be taken, the American gets from from 40 to 60 per cent more money. No coloured labour is used at furnaces except in Alabama, where the climate is very hot; but a well-known employer told me that it was both costly and unreliable.

The average output of an American blastfurnace is more than double that of an English furnace. But it is a mistake to assume that all American blastfurnaces are of the most modern type; not more than half of them are, and not half of them are charged by elevators. Many of them look no better than those built in the North of England 10 or 15 years ago, and some no better than those built in the seventies, but owing to the greater heating and blowing power, and the ores being easier smelted, the output is comparatively good.

We failed to find ocular evidence of the American workman running at high pressure. Certainly the machinery runs at a high speed, but the man showed no signs of over-exertion. According to some writers, he is supposed to love his machine and his work so much that he almost desires to take it home with him. We saw the same preparation for the bell as here, and the same rush at the first sound of it.

As we looked in vain for the extraordinary "hustling" of which we had so often read, so we looked for evidence of men ageing rapidly and being cast aside. I questioned four men in different workshops whom I suspected of being advanced in years, and in each instance was surprised to find that the man was older than he looked. The aged American workman, being neatly dressed and clean shaved, is deceptive in his appearance. Grey beards tell no tales in America. I was also informed that, as is mostly the case in English shops, the aged man is removed to lighter or less responsible work, but not dispensed with. Except in one shop, I saw no work calculated to make a man deteriorate young, or have his working years shortened to a greater extent than they would be at similar work here. In the hotter climate life may be shorter, but that is a matter for the statistician. Those who assert that men over 50 are thrown out of work in America might tell us where they go to. They are not chargeable to the rates. They are not sold as scrap. They do not all finish as millionares at 50. Where are they?

The objectionable features in the life of the American workman are long hours and often a monotonous task. The American mechanic is what Ruskin termed "a segment of a man."

When he minds the same machine or machines for years, turning out the same piece continuously, he becomes a mere machine himself. This accounts for the number of British, and in some instances German, foremen in American workshops. The British mechanic is what may be termed an all-round man, who has a general knowledge of machinery. Lack of encouragement has driven some of the best men in English shops to America. The improvements in American machinery are largely due to the encouragement given to the intelligent workman. Suggestions are always welcomed, and in most works a prize is given periodically for the best suggestion. If it leads to a patent the maker of the suggestion gets an interest in the patent, and his name is put down for promotion. Foremen or managers in this country generally resent suggestions from even their most practical workmen. I have heard such phrases as—"Which of us is gaffer?" "You are not paid for thinking," etc. This kind of stupidity kept back progress in the manufacture of pig-iron for years. The theoretical man, the manager, insisted on what was known as the "open mouth," and "barring" the furnace to make room. The practical workman advised a "fast head" and leave the furnace to do its own work. This suggestion was looked upon with suspicion, because it meant less labour. It was only when it became known that on night shifts, in the absence of the managers, the keeper took his own road and made about 20 per cent more iron than on days, that this suicidal policy was abandoned.

So far as I could make out there was no objection on the part of workmen in America to labour-saving machinery, but I did hear some rather strong objections to the premium system of piecework. I have never met with any objections to labour-saving appliances in this country, and we have had many changes in blastfurnace practice. I remember, many years ago, a change in the mode of filling the burned ore from the kilns in Cleveland, which dispensed with a large number of men. Lately we had appliances introduced for the taking off of pig-iron, but neither the men nor the union objected. I don't believe that there is any substantial ground for the charge that workmen in England object to improved appliances, even when fewer men are likely to be employed.

Skilled mechanics and leading men in our factories and iron and steel works are as well clothed and fed as the same class in America; but when it comes to the unskilled or the general body of workers there is a marked difference. In the former case the difference in wages is not so great, but in the latter it is not less than 60 per cent, and when we come to what is termed the common labourer the Americans get practically double the wages paid in England. This class getting sufficient wages to feed and clothe themselves and their families well causes the general body of American workmen to present a prosperous appearance. We were told at one works that no man employed got less than $1 80c. (7s. 6d.), and at another that no one got less than $1 60c. (6s. 8d.). These were two of the largest works in the United States. In England we have a very large percentage of able-bodied workmen who only get from 3s. 6d. to 4s. per day.

The American workmen are better housed, but rents are much higher, in many instances double what they are in England. Underclothing and a coarser kind of clothes and boots are no dearer than here, but good outside clothing is from 40 to 50 per cent higher. Food costs about the same as in England. After careful investigation I came to the conclusion that, comparing wages and the cost of living, there is at least an average of 25 per cent in favour of the American workman. A careful, sober man can undoubtedly save more money than in England, and, judging from the range of our observations, heavy drinking is far from being customary. Betting on horse-racing is practically unknown to the American workman.

The encouragement given to invention has no doubt contributed to the Americans having more modern machinery, but they commenced at a much later date than their English

competitors, and had all the old country's experience to guide them. It was easier for them to improve on what was practically modern, than for old plant to be pulled up by the roots. But there is, above and beyond all other causes, the tariff. If we take it for granted that the cost of production is equal in both countries, and that in an open market equal profits could be made, what an enormous advantage the tariff gives to the American manufacturer, who has an almost unlimited home market, a balance of 35 per cent. Here is a treasury from which no end of new plant can be put down. Small wonder they do not hesitate to scrap a machine if it is not quite up to date, and that millionaires are being made almost as fast as new machines. But the American people may, bye and bye, discover who pays the tariff.

If the Americans have something to teach us in the way of highly specialised machinery and rapidity of production, they might profit by taking a few lessons from us in political and civic life. Public honour may be deteriorating in the old country, but it cannot yet be measured by dollars.

Answer to Questions, by Mr. P. WALLS.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Yes.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2, 3. Remain at school till 14; continuation and technical evening classes afterwards.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Twelve in America, eight in North of England, twelve in Midlands and South Wales.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. Circumstances are different. With better appliances, the American does more.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Not at blastfurnaces. Bonus or tonnage is more general here.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. It works well here. Generally fair to both sides.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. See No. 6.
10. Where weekly wages are paid—	
(*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?	10. (*a*) They seemed to.
(*b*) On this system do personal energy and initiative meet with a due reward?	(*b*) Yes.

Questions.	*Answers.*
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. We were told so.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Welcomed.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) Yes; but they are a different type of machine. (*b*) Benefits both.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. The American seems to require less.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. He is looked after as here, but in a different way.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Cannot say.
18. Are the American employers more accessible to their men than English employers?	18. As a rule they are. Some employers here can be approached easily.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes; many more.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Generally. Some are bad. Machinery is generally better protected in England.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes; very much better. (*b*) Yes. (*c*) No.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. Due to both, particularly the latter.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Yes; many at furnaces. See my report above. The general condition of workers

Questions.	*Answers.*
	outside the factory is much better than in England.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) As a whole, yes. (*b*) The difference is little; if anything, it is cheaper.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Taken generally, much better. Only artisans, as a rule, in England dress well.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) Yes. (*b*) Rents are from 50 to 80 per cent higher.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. About 40 per cent higher.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Cost of food is no higher. The chief difference is in rent; making allowance for that, the American is fully 25 per cent better off.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. Yes; saving is much more general in America.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No; he knows nothing about it.
32. Is the American working man more sober?	32. Yes.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. It may be so to some extent, but it is much exaggerated.
34. Is it true that the American workman is thrown out of work at an early age?	34. I do not think so; very little, at any rate. Old men are not wanted here.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) Statistics should be got. I found a few old friends, who looked quite fresh.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. No. I made some inquiries, but did not get clear evidence. From what we were told, a smaller proportion.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. A man has usually more saved, and his children help. Independent spirit.

Questions.

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?
40. Could an organisation on the same or somewhat modified lines be introduced into England?
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

Answers.

38. Yes. Better education, better houses, better wages, would pay the employers in the long run.

39, 40, 41. Yes. I was much impressed with the good work done in America by the Civic Federation, more particularly when I had an opportunity of attending its meetings at the Board of Trade Hall, New York. The industrial problems discussed there were such as usually lead to misunderstandings and disputes. Papers were read giving the views of both employers and employed, and not only discussed by both sides, but by highly-educated men who were totally independent of either. When the Civic Federation was first spoken of to the members of the Commission, several seemed to have an idea that it was a kind of Board of Arbitration. If I thought that such a body would attempt to assume the rôle of arbitrator, or in any way interfere in the technicalities of a dispute, I would have nothing to do with it; but its sole function is to use every means possible to bring contending parties together, particularly before the real rupture takes place, or before it becomes too great to be easily healed. I have no hesitation in saying that, had there been a similar institution in this country, it would have saved many thousands of pounds to both capital and labour, and many a bitter tear. I am not overlooking the fact that we have our Boards of Conciliation and Joint Committees, and that in the principal industrial centres trade unions are recognised, and, as a rule, amicable arrangements come to; but we have yet the more or less isolated employer, who has not been accustomed to a union, and dreads the thought of it. He has read of the agent as the paid agitator, and has a kind of holy horror of him. On the other hand, we have the workman to whom a union is new, and who has no more idea how to handle it than a three-year-old boy has to manage a toy locomotive. The existence of such conditions form a sort of industrial powder magazine, where the smallest spark is certain to create an explosion. When it takes place both parties stand on their dignity, and every hour the gulf grows wider. The function of a similar body to the Civic Federation would be to bring the contending parties face to face. Once this had been done, each would find that the other was not nearly such a monster as he expected to meet, and it would probably be discovered that there was a certain amount of right and reason on both sides. Such a body could not fail to do good in this country.

P. Walls.

Mosely Industrial Commission.

Report by Mr. J. MADDISON, of the Friendly Society of Ironfounders of Great Britain and Ireland.

The Commission were despatched in small parties to the following points of the United States and Canada:—Boston, New York, Philadelphia, and Montreal, and as per arrangement the whole party assembled at Niagara, on Thursday, November 13th, 1902. Here we were met by Mr. F. H. Mason, Secretary of the Board of Trade, Buffalo, who had made arrangements for us to visit what is said to be the largest steel-producing plant in the world, that of the Lackawanna Steel Company, which is at present in course of construction. This company has a subscribed capital of £8,000,000, and has secured 1,500 acres of land by the side of Lake Erie, some six or seven miles from Buffalo. This being mostly bog-land, all the buildings are erected on piles from 40 to 70 feet deep. We were conveyed to these works by a steam launch, and a special train was provided to take us through them. Although they are only in course of construction, the iron foundry and turning shops were ahead of other departments, and were actually at work, but as we were kept continually on the march there was little or no time for investigation. It is intended to enlarge the foundry later on, the present structure being pretty well filled with something like 80 journeymen, who appeared to be working very comfortably; indeed, one of our craftsmen told me they were not rushed, although it must be noted that they were making castings for themselves, not for a market. The wages paid were $3\frac{1}{2}$ per day (14s. 7d.). I did not get the hours, but think they were 10 per day. The whole plant is on an exceedingly large scale. On the lake, in close proximity to these works, is a substantial breakwater some four miles long, which is necessary to protect the shipping in rough and boisterous weather, which often prevails on this lake.

On returning to Buffalo we visited the General Post-office, which is a magnificent building. We also visited the City Hall or Council Chambers, where the late President Mc.Kinley lay in state for eight hours. Buffalo has a wonderful supply of corn elevators, and ranks as the fifth port in the world in tonnage, showing the enormous amount of traffic on those lakes. Returning to Niagara the same evening, we left the following evening for Cleveland, distant some 290 miles, travelling in a sleeping-car. Our sojourn in Cleveland continued over Saturday, Sunday, and Monday, the latter being the only day set apart for industrial investigation. Since the town and district contains some 70 foundries, employing about 2,000 moulders, the time did not permit of such minute inquiry as I should have desired. My real investigations may be said to commence with the Westinghouse Electrical Engineering Company, which has two large foundries side by side, one for light and the other for heavy work. It employs about 90 journeymen, and about 150 labourers; the latter I mention to show the difference in the number of labourers as compared with England. Only the foundries work on the nine hours system, all other departments working longer hours. The wages are 3 to $3\frac{1}{2}$ dollars, and I should say the men work considerably harder than in England. Some very large castings are made, consequently the heavy shop was in a very disorderly state. The system of forming the moulds with cores is largely adopted, resulting in very rough castings, and causing a considerable amount of dressing; quite a large number of core-makers are employed in this shop, and are paid from $2\frac{1}{4}$ to $2\frac{1}{2}$

dollars per day. Most of the labourers are foreigners, who can neither speak nor understand a word of English, the result being any number of mistakes in taking instructions as to what they are to do, which cannot be conducive to cheap management.

I next visited the American Shipbuilding Company, engaged in very light marine work, and employing 36 moulders. Here, too, the men appear to be kept on the move, and work 10 hours per day, time and half for all overtime, and double time for Sundays and all recognised holidays. The wages range from $2 90 cents to $3½. In this class of work they have something to learn from the English moulder, especially in loam work, as when I described our system of casting loam work without ramming up, the foreman, who seemed a very nice young man, open and anxious to learn anything in connection with the trade, appeared very much interested in the system above mentioned. In turn he took a great deal of trouble in describing a very neat little core machine, termed the "hammer core machine," and took the trouble to mix some sand and make a few cores to show how it worked. I have no hesitation in stating that no foundry ought to be without this machine, which makes ten sizes of perfectly true round cores from ⅜ up to 1½ inches and 22 inches in length. In appearance it resembles a sausage machine. It consists of a base with a bit-shaft and, journaled therein, of an upright hopper, with central feeder-spindle geared down to the shaft. With each machine are furnished six core trays (for five cores each), one core bracket, ten bits and ten core tubes. Further particulars may be obtained from Brown Brothers Manufacturing Co., Chicago, U.S.A

At night we left Cleveland by sleeping-car, and after a 13 hours' ride arrived at Chicago, distance 357 miles, by no means fast travelling; the reason, we were told, was a breakdown. Here again most of our time was taken up in sight seeing, which the party were very much dissatisfied with, knowing that we were expected to report on industry. One day was set apart for industrial investigation, yet there are 135 foundries in and around Chicago. This was the limit of our going west, and the party were now to turn towards New York; true, anyone who considered further perambulations necessary were at liberty to go where he pleased, but with the stipulation that we must attend the Civic Federation meeting in New York on the 8th, 9th, and 10th of December. However, it gave us the opportunity of devoting the whole of our time to industrial pursuits. Mr. Barnes, of the A.S.E., and myself, decided to stay behind, and work together, as moulding and engineering are generally found side by side. The first foundry we visited in Chicago was the Allis-Chambers, a very enterprising firm, having quite a number of foundries in different towns. The shop in question is the best we had seen up to that time, being well lighted, of a good height, and good cranes. It was also provided with apparatus for cooling the shop in summer, and heating in winter; fancy any English firm being asked to make such provision for the comfort of its employés! Although the foreman was suffering from a burnt foot, he received me very courteously, and was only too pleased to accompany me and give all the information at his command. The class of work was mining and engineering, some castings over 30 tons weight being made in dry sand. One hundred and twenty-three journeymen were employed, and wages were $3 to $4 a day, and the hours 55 per week. The firm intends to make the hours 54 per week after the New Year. I should say the men do not work any harder than in England. The cupolas are capable of melting 20 tons per hour. The moulders had been on strike in this shop for a considerable time on the hours question, and the dispute was brought to a close quite recently, the men gaining the point of contention. During the strike the usual free labour men, what the Americans term "scabs," came on the scene; in point of ability they seem to be on a par with those sailing under the same flag in this country, as may be gathered from the foreman's statement, that he hoped never to pass through

a similar ordeal. Indeed, he said he would not undergo such another experience for any money, it being no uncommon thing to run down 40 tons of iron per day and obtain 15 tons of castings, whereas with the union men the present percentage of bad work is only two per cent. Asked what had become of the scabs, he said they had gone to another shop belonging to the same firm in the town run with non-society men.

We next made application for admission to Crane's shop but were denied; owing to the manager or employer having visited England some time ago, and being refused admission into one or more English firms he had determined to reciprocate the treatment whenever opportunity offered itself. I was very much disappointed, as I had a great desire to see through this firm's works, their class of work being pipes. I understand they employ a good number of females under rather unusual circumstances.

Next morning we were early on the track for Milwaukee, distance 86 miles, by the side of Lake Michigan, where we were readily admitted into another shop belonging to the firm of Allis-Chambers, engaged in pretty much the same class of work as that of Chicago, viz., engineering and mining plant. They make very creditable castings up to 60 tons weight, and employ 126 journeymen; the wages are from $2.85 to $3.90 per day, and the men work a little harder than in England. They have a system of metal cribbing hinged into each other, so as to have as little ramming as possible in connection with the loam moulds. Here we find the hammer core machine in evidence again. This firm have quite recently built a new foundry and engineering shops some five or six miles out of Milwaukee, which, with their usual courtesy, they allowed us to inspect, known as the West Allis Works, which is said to be the most up to date plant in America. The foundry is 560 feet long, and consists of three bays, the centre bay being 100 feet wide, the two side ones 60 feet each, making a total of 220 feet wide, with an area of 125,000 square feet. The crane facilities are excellent, one 60-ton travelling crane in the centre bay, with a 15-ton auxiliary hoist, also two 40-tons with 10-ton auxiliary hoists. One of the side bays has three cranes, one of 30, and two of 20 tons, all with auxiliary hoists for light work. The other bay has two 20-ton and the usual auxiliaries for light work; all are overhead and driven by electricity. This shop is unusually well lighted and ventilated. A number of ventilating turrets are located in the roof, and provided with exhaust fans, driven by electricity, for removing the gas and smoke when necessary. It is also intended to heat the building on the hot water system in cold weather; such consideration for the comfort of their workmen never enters the minds of British employers. The drying stoves are fitted with doors on the roller system, like shop shutters, but the foreman does not approve of them as the heat escapes through the joints. Several large concrete pits are built in the floor for casting purposes. The iron and coke is loaded on an iron trolly, run up an incline by electricity, and tipped right into the cupola without ever being touched by hand. The box-parts and other appliances are very creditable to the foreman in charge, who is an Englishman hailing from Derby. I may here mention that there appears to be an abundance of good moulding sand all over the country. The wages in this shop are from $2.90 to $3.90 per day, and the men appear to work pretty comfortably. The works have not got their full complement of men yet, they expect to employ 200 journeymen when in full swing, and also contemplate an extenson of 200 feet. I think the hours are 9½ per day, although I am not quite sure. The combined output of this firm in their Chicago and Milwaukee works is expected to reach 5,000 tons per month.

I previously mentioned that Allis-Chambers were running a shop in Chicago with non-union men. We quite accidentally dropped into this shop. The class of work was of a much rougher character than that of the other three shops already referred to. This shop is one of the

oldest in Chicago, and entirely out of date, worked with jib cranes. I was shown drawings for a new shop they contemplate building on the same ground. On asking if the non-union element gave as good results as the union men, I was told, emphatically, no; they were employed because it was a question of the management refusing to submit to the union. Several coloured moulders were employed; the foreman said he never found any good moulders amongst them; they have no ideas of their own. The time-wages are 3 dollars and upwards, but the majority of the men are on piecework. There is one Pridmore machine working piecework in this shop.

Next day we journeyed to Cincinnati, distant 300 miles. Cincinnati being the headquarters of the North American Iron Moulders' Union, we received great assistance from the officials, who vied with each other in their kindness. We were taken to the Buckeye Foundry, which is a very neat little shop employing 45 journeymen; the class of work is tools, the castings being very creditable alike to the men and the firm. The wages are from 3 dollars upwards, hours 10 per day. The shop is kept very orderly, and is well equipped with tackle, thus enabling the men to do a good day's work without hustling. This firm deal very fairly with the men; for instance, if a man is making four of a certain job for a day's work and he makes five, he is paid time and a quarter, or the full pay for the fifth one, no attempt being made to stop any part of his extra effort. This is as it should be. A little plate-work is done in this shop, but not to any great extent, and, of course, piecework. The moulders of Cincinnati enjoy a privilege which is not allowed elsewhere: if a man is working at a job which takes more than one day to make, each day that he does not cast is considered as a cold day, and he is allowed to leave off work 1½ hours before the regulation time, and paid the full number of hours. I have hitherto omitted to state that most of the foundries visited have a chemical department for analytical purposes, which might be profitably adopted in Great Britain.

The U.S. American Pipe Co. was the next shop visited; it is located at Addistown, some 14 miles down the River Ohio, Kentucky being on the other side. The jobbing pipe shop is a very fine one, equipped with good crane power, and splendid tackle to work with. Pipes six and seven feet in diameter are a very common size; I was informed they make them up to 12 feet. They seem to be well up in the pipe-making industry. A large drying stove is built in the floor, 40 feet by 25 feet, and 18 feet deep, fired in one corner at the bottom, a fan being provided for drawing the cold air out at the bottom of the stove. The moulds are hoisted into this stove, and seldom require more than one night to dry. The wages are from \$3 to \$3·75, and the hours 10 per day; the men seem to work fairly comfortably. The pipe-pit shop is on an elaborate scale, but a very undesirable place to work in, as any one knows who has been in such shops. The charge hand has \$2½ per day, and those under him \$1½, with the exception of the coloured men who are paid \$¼ less than the others, the reason given for this being that they would not work if they were paid as much money as the others, but would stay off to drink it. I was surprised to find the old-fashioned core-bar in use with hay-bands, not a single collapsing spindle in the place, but by the aid of a pressed roller on the hay-band, it was wonderful how smooth and regular the inside of the pipes was turned out. One cupola melts as much as 230 tons of iron per day.

Returning to Cincinnati, we proceeded to Hamilton, 25 miles distant. In Nile's Tool Works, which is far-famed for tool work, 64 journeymen are employed in the foundry, which is a mixed shop, *i.e.*, union and non-union men, and the wages are \$2·80 upwards. Hitherto I had seen little or no bedding in the floor, there generally being a full top and bottom box, but in this shop a good deal of bedding-in is done, the foreman stating he had great difficulty in getting men capable of working on the other system. The system of forming moulds with cores is largely in vogue; consequently a large number of core-makers are required, who receive from \$1½ to \$2½

per day of 10 hours. Asked why there was not the slightest approach to an old man in the place, the foreman "guessed" that when they were unable to do the usual day's work there was not much demand for them. I consider this the hardest working shop yet visited.

We next went to Pittsburg, where we had intended to have two days, but as we arrived at two o'clock in the morning of Thanksgiving Day, we found the whole of the works closed, and were thus deprived of a day's investigation. We began with the Westinghouse Co., where over 100 journeymen are employed; the class of work is machinery—castings up to 40 tons are made, and on the whole the work is very creditable to all concerned. There are two head foremen, one for each half of the shop, and each have two under-foremen. Hinge-boxes are largely used, principally for convenience of getting at the work to finish it, such boxes being very nicely got up. Wages from $3\frac{1}{4}$ to $3\frac{1}{2}$ per day, nine hours per day or 54 hours per week. Here they have the Pittsburg bonus system in force, but not carried out as is being attempted in England. For instance, I was shown a job by the young man who made it (an Englishman); though allowed eight days for making it, he completed it in five, but not the slightest attempt was made on the part of the firm to participate in the three days made by extra effort, the man being paid the full eight days. When a bad casting occurred he was paid the five days he spent in making it, and then paid the full eight days for making it over again, thus simply loosing the three days' extra effort. This statement I had confirmed by the foreman. The same young man had £14 to draw for 13 days under this system. Hitherto I have omitted to state that in almost every shop the pegging rammer and flat rammer are combined in one, one at one end and the other on the other end, the flat rammer being only $2\frac{1}{2}$ inches in diameter. Opinions will probably differ as to whether this is an advantage or otherwise.

We next visited the Mesta Machine Co., Homestead, six miles from Pittsburg. General engineering is included along with machinery, and very heavy castings are made; steel castings are also made; the shop is the longest ever seen by the writer, being 960 feet long by 60 feet wide, with six cranes; there is also a small portable jib-crane, which can be hoisted with the overhead cranes, and fixed on any column along the shop. Foreman and men agree that shops of this length are not advantageous, as the cranes are apt to block each other. The wages and hours are the same as in the Westinghouse shop; the coremakers are better paid than I have generally found, and get $3 per day. I consider the pace very little harder than in this country.

We were next taken to Mackintosh, Hemphill, and Co.'s, known as the Fort Pittsburg Foundry, said to be the oldest foundry in the town. The class of work done may be termed general engineering, including steel. Although an old shop, it has two good 20-ton cranes, which have had their lifting capacity severely tested, as some time ago a bed-plate was made in this shop, 74 tons weight, and was lifted by these two cranes. This casting was made in dry sand, and I understand was faultless. I noticed that the steel castings had a much cleaner skin than is generally found on such castings. The wages and other conditions were similar to the two previous shops. Next day (Saturday) we started early for Altoona, situated under the Allegheny Mountains, 117 miles from Pittsburg and 1,200 feet above sea level. Our intention was to go through the Pennsylvania railway shops in the afternoon, but we were disappointed again, as they closed at noon; hence we were obliged to stay until Monday morning, when we commenced early. These works are very extensive and employ about 7,000 hands, who speak very highly of the company as employers. In the foundry department, piecework seems to be the order of the day, and there is a good deal of machine work. General moulders are paid $2.50 per day, and when on piece earn $3\frac{1}{2}$ to $4; coremakers are paid $2\frac{1}{2}$ to $3; machine moulders on piece earn $3\frac{1}{2}$ per day; brass moulders earn $3\frac{1}{2}$ to $4, on piece; the Tabor machine hand earns $2\frac{1}{2}$ to

$2.75 per day; the steel chilled car-wheel makers earn $3½ to $4 per day; they are simply handy labourers, each having a helper, who, in turn, becomes the so-called moulder. Some time ago, the foreman brass moulder was sent to England by this firm, to see if he could learn any points, and he declares that the Lancashire and Yorkshire railway shops, at Horwich, are the most complete he ever saw; even the U.S.A. must take a back seat with such a firm. In the Altoona works, specialisation and subdivision are the general features throughout. Altoona is considered to be a thorough working man's town; it is said that 90 per cent of the working men own their own houses, which, if true, will be bad to beat in any town.

We next went to Washington by Harrisburg and Baltimore. Here for once we indulged largely in sight seeing, there being very little industry. We did, however, accidentally fall across a small foundry on a primitive scale, where only five or six men are employed, the wages being $2½ to $2¾ per nine hours day. Washington is on the borders of the Southern States, and wages gradually get lower as you go south; owing to the excessive heat, the coloured race are largely employed and the class of work not of a very high order. We visited the Navy Yard, where the engineering shops seemed very good and on a large scale; but I was very much disappointed with the foundry—indeed, I consider it a disgrace to the nation.

Our next town was Philadelphia, 135 miles from Washington, where we commenced investigations in the far-famed Baldwin locomotive shops. Here we found most of the work done on a piecework system of the blackest dye, viz., jobs taken by contract by one man and sub-let to men under him—the sweating system pure and simple, consequently the pace is very fierce and the work scandalously finished. The time wages are $2 90c. and the hours 60 per week. I noticed that the roof of the foundry was level and without sky-lights, and on inquiry ascertained that the boiler shop was on the top of the foundry, and was told that a smiths' shop was on the top of the boiler shop. I should say the success of this firm is attributable to cheap labour and rough work.

Leaving the Baldwin works, we stepped into Sellers and Co., tool makers, close by. This firm willingly escorted us through their fitting shops, but declined to allow me into their foundry, into which I was simply allowed to peep. We next visited Bement and Miles, tool makers, in close proximity to the two last-named firms. Here 42 journeymen are employed, all piecework, and, of course, the pace is naturally hot, but they get very good money—indeed, were I to name the amount it would be discredited. All the firms in Philadelphia, except Baldwin's, work 56½ hours per week. I may say there is an abundance of excellent moulding sand in the immediate locality. It is said that 30 per cent of the working men of Philadelphia own their own houses. We next wend our way to Cramp's shipbuilding yard, but were informed they did not admit visitors on a Saturday.

Next morning (Sunday) we travelled to New York, distant 90 miles, and attended the meetings of the Civic Federation, on Monday and Tuesday. Arrangements having been made for my sailing for England on Saturday, I had to relinquish my attendance at the Civic Federation on the third day, in order to make the most of the time at my disposal for further investigation. Arrangements had been made by Mr. D. Black, editor of the North-American Ironmoulders' Journal, for their business agent, Mr. W. A. Perrine, to escort me over the district, and experience proved that I certainly could not have been placed in better hands. Our first visit was to E. W. Bliss and Co., Brooklyn, where 75 journeymen are employed, at 3 dollars to 3 dollars 75 cents per day of 9 hours; the class of work is general jobbing, including some light marine work. Here I found a Tabor moulding machine, worked by a moulder, receiving the same rate of wages as other men in the same shop, not working piecework, and the firm was

perfectly satisfied with the result. My reason for making special reference to this is because English employers refuse to allow moulders to work the Tabor machine. This shop is well craned, fairly well lighted, and the pace a little faster than ours. We next went to the Lidgerwood Manufacturing Company, where 50 moulders are employed, and the wages and hours the same as in the previous shop, the class of work being hoist and marine work. Here I found (to me) a new feature in core-making without "vents," and, up to certain sizes, without irons. They are made of sea-sand, mixed with linseed-oil, ratio 1 in 45; such cores can be blown to pieces when placed in the drying stove, but when dry sound like a piece of pot. Unless the core has a level top, so that it can be turned on to a plate, there must be metal core-boxes, so that each core can be dried in the box; consequently, if more than one is required each day, then the number of core-boxes must equal the number of cores required each day. Another great advantage in connection with such cores is that next to no labour is required to take them out of the castings. Core-makers receive 2¼ to 2½ dollars per day. This firm are also running Tabor and Pridmore machines, each worked by moulders, as in the previous shop, and giving satisfactory results, the pace much about the same.

We next visit the Worthington Pumping Company, Elizabeth Port, Jersey, about 14 miles out from New York. This is a very extensive plant, employing 140 journeymen. Wages from 2 dollars 80 cents to 3½ dollars, core-makers 2½ dollars. Here we find another new feature in the shape of 30 young women making cores, all piecework, earning from 1 to 2½ dollars per day of 9 hours; most of the cores made by these girls are made similarly to those described in Lidgerwood's, viz., without vents and irons, but the mixture of linseed-oil is given as 1 in 60. This firm bears a good name amongst their workmen. Two Englishmen working in this shop declare that they do not work any harder than in England. Sixty-four men are working various machines and plate work, all piecework; they are not moulders. The shops are equipped with the usual good crane-power.

We next turn in to S. L. Moore and Sons, shipbuilders, in the same town; number of journeymen, 35; wages as above. One shop is engaged exclusively on loam work. They were busy ramming a loam job up with the pneumatic rammer when we were there, and the foreman asked if we had anything like that in England. I replied that we did not require such rammers, as we had a system of casting loam moulds without any ramming whatever, which I explained.

We closed our labours in Elizabeth Port, by a visit to A. and F. Brown's, pulley manufacturers, where 30 men are employed, and the wages and hours the same as in the two previous shops Several pulleys are made on the machine, although the foreman protests against the Pridmore being considered a moulding machine and I agree with him, as the job is rammed up in every particular just as if there was no machinery about it; it is simply drawing the pattern down through the plate, a principle which every moulder is cognisant of.

Next day (Friday) I finished up my perambulations in New York City, commencing with the firm of Mott and Co. This firm have quite a number of small shops, employing 155 journeymen on a very light class of work, such as baths, stoves, and hollow work generally, mostly piecework. A London man, named Stoneham, is in the position of second foreman.

Our next and last shop was Jackson's Architectural Iron Works. The work, as the name of the firm indicates, is general castings for structural buildings, for which there is a great demand in and around New York. The foundry is somewhat antiquated, with the jib-cranes stuck in the centre of the shop.

Questions.	*Answers.*
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. From what I could learn, I am inclined to believe they do not; but take the view that the more a man earns the better for the employer.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. The premium or bonus system I have already dealt with.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. Yes, certainly; just the same as in England.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Yes.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. This question is scarcely applicable to our trade.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Probably such may be welcomed, but the reward, I am afraid, is of a doubtful character, the same as in England.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. Not applicable to our trade.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. Pretty much the same as the British workman.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. The reply to the previous question is equally applicable to this.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Unable to answer.
18. Are the American employers more accessible to their men than English employers?	18. I am of opinion that they are considerably more so.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. In my opinion, there are greater opportunities in America.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. So far as my experience goes, they are better cared for in America.

Questions.	*Answers.*
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. There is not a great deal of difference, but what little there is, is in favour of the Americans
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. Not applicable to our trade.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. I have already dealt with this.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Yes; they are better fed, although, personally, I don't care for their system of living. (*b*) I should say, taken on the whole, it is much about the same.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) They are probably a little better clothed. (*b*) Clothes are considerably dearer in America. Suits that cost £4 in England probably cost £6 or £6. 10s. in America. Shoddy clothing may be obtained for very little more than in England.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) We had very little opportunity of looking into the social life. What little we did see was of the better class of workers, living in the suburbs, who could not be taken as a fair criterion, but the houses certainly seemed better and more commodious than we are accustomed to in England. (*b*) That will largely depend on location; I should say they are higher even than in London. (*c*) I have already referred to this point in connection with Altoona and Philadelphia.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. Has already been dealt with.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Undoubtedly the American has a great deal the best of the English worker—that is to say, he will have a much larger residue after living out of his wages.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Undoubtedly.
30. If yes, does he *in fact* save more, or not?	30. I cannot answer this question.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. Relating to gambling, unable to answer.
32. Is the American working man more sober?	32. I believe he is, and I noticed that we heard no complaints about losing time.

Questions.	*Answers.*
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. One thing is certain, that very few aged men are to be seen in the workshop, which seems very suggestive.
34. Is it true that the American workman is thrown out of work at an early age?	34. My answer to the previous question suggests this.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) The American workmen admit that such is the case. (*b*) I cannot say.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. I am unable to say.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. Impossible for me to say.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. I would suggest that you give the English workman higher wages, which will put matters right.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. Yes; I consider it a step in the right direction.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. I am of opinion that such a body might prove of great value in preventing industrial warfare in England, but to command confidence such a body would have to be constitutionally elected, as a self-appointed body would not be tolerated.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. Personally, I favour the establishment of such an organisation.

J. MADDISON.

Mosely Industrial Commission.

Report by Mr. JAMES COX, of the Associated Iron and Steel Workers of Great Britain.

The phenomenal growth of American industry during the last ten years, and more especially since the year 1898, stands out unparalleled in the world's history—in the rapidity of its development and the gigantic proportions it has assumed—as one of the greatest marvels of the age. It has attracted the attention of the industrial world, arousing interests keen as they are varied. To the unravelling of its subtle mystery many of the foremost captains of British industry have devoted their closest attention, while the glamour of its magnitude has caused something bordering upon panic to the weak and impecunious employer of labour, who by the accident of birth finds himself in a position for which by training and general aptitude he is quite unfitted. The scepticism of the average workman is equally pronounced.

Phenomena such as we are now investigating ought not to be approached in any spirit of panic or unconcern; either attitude exhibits weakness or ignorance—or both combined. The chief requisites appear to me to be the fullest knowledge possible, together with strict impartiality. It is useless for employers or workmen to close their eyes against ascertained facts, and equally disastrous is the attempt to colour or distort them.

It was in this spirit that, with the consent of the members of the Association I represent, and of the Northern Conciliation Board, I accepted the kind invitation of Mr. Mosely to form part of his "Industrial Commission of Inquiry." The time at my disposal for prosecuting my inquiries was stated to be about one month, though the period I had free to devote myself exclusively to my own trade was much more limited. This was owing to an apparent alteration of plans, which was to give us a rapid tour through the principal cities, visiting places of interest under the auspices of the "Civic Federation," enabling the delegates to obtain a general view of American life—extremely interesting, yet necessarily of a somewhat superficial character in many respects.

It was my first visit to America. I could not avoid many preconceived ideas from the scores of reports I have read of American life and industry, many of which were speedily dispelled by personal experience. I had been led to expect one eternal perpetual "rush" and "hustle" pervading every aspect of life, whether in the office, in the street, or in the dining-room, quite bewildering to the average Englishman.

I have walked the principal streets of the leading cities, I have visited all kinds of hotels and restaurants, I have seen a great deal of commercial life in the office, but have yet to see anything in the nature of rush or hustle which cannot be met with in any of the great industrial centres of this country, though I often thought the American constable might advantageously take a few lessons from our Metropolitan police in the regulation of city traffic. Let me here interpose the remark that it may be objected that a four weeks' tour is too short to base any definite statement upon. I recognise the force of such, but I submit that experience does not

altogether depend upon a time limit—but its utilisation ; and it was no small gratification to be told by a prominent manufacturer that I had seen and measured up more in a couple of weeks than many he had known who had spent months over their visit.

I was also led to believe that this hustle and rush permeated and actuated all kinds of workmen in every department of labour. I will speak of the iron and steel industries specifically later on, but in all my journeys through these cities, over buildings in construction, through the workings of the New York Underground Railway, so far as I could see it, through factories, workshops, on the railways and at the wharves, I have seen (except in rare instances) no exceptional energy displayed by American workmen beyond what exists in similar places and under similar conditions in this country.

Another erroneous opinion I had formed was in respect to American railway travelling. I am not referring to the Pullman car—a very luxurious car, but unfair in comparison—but to the ordinary first-class car, the cost for travelling in which is about 1½d. per mile. From reports I had read and statements made to me I anticipated far greater comfort. There is, I find, a tendency to compare our "worst" with their "best." Our own saloon or ordinary through long distance cars, though, of course, not so spacious, are certainly equal to any of the ordinary long distance cars of America for comfort ; and as for many of their local cars, we have nothing dirtier or worse.

The cost of living was another matter upon which I had wrong impressions—both from private and official sources. It must be understood that I am now speaking entirely from a working man's standpoint. To the ordinary traveller who compares the two countries from his experience of hotel life alone, the difference may be three to one ; to the well-to-do resident who lives in large suburban houses with an up-keep of servants, etc., the difference will be perhaps two to one ; but to the ordinary working man, the cost of living is not so much higher in America as we are led to believe. In the matter of every-day diet of the average workman, there is practically no difference between the two countries, except it be that the American workman has the benefit of a wider variety in the shape of poultry and fruit at a price far below that which obtains in this country. I have dined off excellent geese purchased at ten cents per lb., while turkeys can be obtained from 12 cents per lb. House rent, however, is far higher than here, as are many of the necessities entering into household management of even the humblest workman, and I should estimate that on the whole the cost of living to an ordinary labourer living on the same plane in both countries would be about 20 to 25 per cent higher in America than in this country. It should be remembered that this difference will be increased in proportion as workmen rise above this level of bare subsistence.

The united tour, starting from New York, included Albany, Schenectady, Niagara, Cleveland, Chicago, Dayton, Pittsburg, Washington, Philadelphia, and New York. Dayton I was unable to visit, and therefore missed a view of the splendid works of the National Cash Register Co., owing to my staying behind in Chicago to visit the South Chicago and Jolliet Works. Washington I had also to forego because of my limited time in Pittsburg.

New York was principally interesting to me as exhibiting more than any other city the utilisation of steel girders in building construction, the general adoption of which has been one of the many factors in the development and growth of the American steel trade during the last five years. The New York sky-scraper is one of the architectural marvels of the age. With caisson foundations on bed-rock from 50 to 100 feet below the surface, there seems scarcely any limit to these gigantic superstructures, some of which tower to a giddy height of from three to four hundred feet. Restriction of area necessitates the adoption of this system ; time alone can test

their endurance. It is given in evidence of the go-a-headness of New Yorkers that they think very little of pulling down a six or eight storey building to erect upon its site a 25 or 30 storey building. It is, however, only a matter of necessity and cheapness. The cost of the construction under the old system of bricks and stone was given me as five dollars per cubic foot, whereas the cost with steel frame work is given as less than 40 cents per cubic foot.

While in New York we visited some of the schools, and also "Pratt's Institute" in Brooklyn. I am asked to give an opinion upon the advantages of American education as compared with those of this country. Nothing would have given me greater pleasure than a thorough and exhaustive investigation into such a momentous question; but the American educational question cannot be tested from the standpoint of any one city. From inquiries I have made I think it would be found that in the matter of technical education they are ahead of us. Children appear to be kept longer at school than the children of the working classes of this country, higher wages enabling the parent to do this. This seems to be borne out by the 1900 census returns, which only give 1,901 children under 16 years of age as working throughout the whole iron and steel trades in all their branches. The educational laws of the New York State certainly confer upon the Educational Authorities very large powers for industrial training in public schools, together with special powers of taxation for this purpose. How far these powers are utilised, and with what results, can only be ascertained by more extensive observation than was possible to me. I am, however, strongly inclined to think such an inquiry would show a very extensive application of those powers, together with exceptional and far-reaching results.

Schenectady was our next destination in order to make a tour of the exceptionally fine shops of the General Electric Co., and also of the American Locomotive Company. Our late arrival rendered our inspection somewhat a hurried one, but I was especially impressed with the exceptional arrangements for the comfort and well-being of the workpeople. Wash-houses and shower baths were on a very extensive scale, and every workman had a separate wire-caged locker for his clothes. It was a common practice for the workman to make an entire change of clothing when leaving the works, the baths and wash-houses presenting an animated scene of pleasure and amusement. Eighty-five per cent of the Electric employés are on piecework, and 90 per cent *bona-fide* members of their trade union.

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From Albany we proceeded to Niagara, where we met the contingent which had come *via* Montreal. Our first visit was to the Electric Power Station. Here was a marvel in very deed. Man engaged with the rushing relentless over-mastering Niagara, and by the dash of a tiny spray of that gigantic on-rush of water, generating 50,000 H.P. and an electric current at a pressure of 22,000 volts. America may well be proud of their world-renowned Niagara, but she may well be far more proud of the brains and skill whereby she harnesses this mighty force of nature to her industrial and social requirements and turns this maddening fury into a generator of life and light. The station is situated about a mile above the falls on the river side where an

altogether depend upon a time limit—but its utilisation; and it was no small gratification to be told by a prominent manufacturer that I had seen and measured up more in a couple of weeks than many he had known who had spent months over their visit.

I was also led to believe that this hustle and rush permeated and actuated all kinds of workmen in every department of labour. I will speak of the iron and steel industries specifically later on, but in all my journeys through these cities, over buildings in construction, through the workings of the New York Underground Railway, so far as I could see it, through factories, workshops, on the railways and at the wharves, I have seen (except in rare instances) no exceptional energy displayed by American workmen beyond what exists in similar places and under similar conditions in this country.

Another erroneous opinion I had formed was in respect to American railway travelling. I am not referring to the Pullman car—a very luxurious car, but unfair in comparison—but to the ordinary first-class car, the cost for travelling in which is about 1½d. per mile. From reports I had read and statements made to me I anticipated far greater comfort. There is, I find, a tendency to compare our "worst" with their "best." Our own saloon or ordinary through long distance cars, though, of course, not so spacious, are certainly equal to any of the ordinary long distance cars of America for comfort; and as for many of their local cars, we have nothing dirtier or worse.

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inlet of water is made by a canal cutting, some 100 feet wide and 15 feet deep. The water—not a rain drop to the majestic current—flows into 10 large tubes, down which it has a fall of 140 feet at a rate of about 25,000 cubic feet per minute each tube. The turbines at the bottom are turned by the rush of this waterfall, and to them are geared the up-shafts which work the dynamos above. Each dynamo weighs about 30 tons, and revolves at the rate of about 1,500 revolutions per minute upon a water pressure. The electric house is 450 feet long, and the total staff of men employed are eleven on each shift of eight hours, making a total of 33 men. So cheap is electricity that there appears to me an unnecessary waste in the 15 per cent leakage to Buffalo, a distance of about 24 miles. The plant is now being doubled, and will soon be quadrupled. On the Canadian side the Niagara Power Co. are erecting 10 motors of 10,000 H.P., and it requires no stretch of imagination to foresee within a comparative short space of time a development of industry and power dwarfing the wildest dreams of a few short years ago into insignificance.

Of the falls, what can I say? They are a dream. I saw them in the brightness of a westering sun and the limpid rays of the moon, and in the sight lost my regrets that I had not delved into the grime and smoke of mill and forge immediately upon my arrival.

From Niagara the party journeyed to Cleveland, upon which others must write, as I paid a flying visit to Toronto, and rejoined them at Cleveland on their departure for Chicago.

It is difficult to realise the progress made at Chicago. One is almost staggered with the thought that less than a century ago Indians camped in State-street, and that the mighty mass of structure and population is but the product of 50 years. Here the almighty dollar is absolutely the unquestioned king, ruling supreme in every phase of life, private, social, and public. As a sample, however, of how Government work is done, I may mention that they have been eight years in building their new Post-offices, which they say may be finished in 1910. This is only illustrative of Government work in general. Any third-rate corporation in this country would have accomplished the work in four years.

The name of Chicago is always associated with hogs, and so we paid a visit to Armour's meat-packing establishment. I have read many descriptions of this marvellous place, for such indeed it is, viewed from its whole conception and organisation, but never again do I intend visiting a spectacle so gruesome, or spending several hours in the smell of reeking hot blood and the stench of a thousand byres and pens. Still the place is well worth a visit, for here, as in all other industrial departments, mechanical contrivance and development is marvellous.

It was at Chicago I first began my inquiries into my own special industry, and from here I shall now devote myself to that in particular. I remained behind a couple of days, and afterwards proceeded to Pittsburg, making that place the centre from which I visited works within a radius of a hundred miles. Within this radius more than one half of the total iron and steel product of the United States is produced. I had, therefore, ample opportunities, within the limit of the time at my disposal, to visit a great variety of works, interview many of the leading manufacturers and managers, talk to a large number of the workmen, discuss matters of work and wages with their representatives, from all of whom I received the greatest kindness without exception, and the most hearty readiness to assist me in my inquiries.

One of the first essentials in investigating an industry is to have a correct knowledge of the productiveness of the country under examination. I am writing this report, not only for those who know the extent of American production, but for those who have not the facilities for such knowledge. I shall therefore have to deal with a few figures illustrative of American production in the particular trade I represent.

The total production of pig-iron in 1901 was 15,878,354 tons. I simply mention this to give the grades of pig-iron included in this total as having a bearing upon the manufactured product.

Grades.	Tonnage.
Bessemer and low Phosphorus Pig-Iron	9,589,936
Basic Pig-Iron	1,448,850
Forge Pig-Iron	639,184
Foundry Pig-Iron	3,186,348
Malleable Bessemer Pig-Iron	256,532
Charcoal Pig-Iron	360,147
White and Mottled	97,374
Spiegeleisen and Ferro	291,461
Direct Castings	8,522
	15,878,354

The steel production consisted of 8,713,302 tons of Bessemer, 4,656,309 of open hearth, and 103,984 of crucible and miscellaneous—a total production of 13,473,595 tons. The production of Bessemer steel in 1897 was 5,475,315 tons, so that the increase over four years was 3,237,987 tons. The production in open-hearth steel over a similar short period shows even a greater increase; in 1897 it was only 1,608,671 tons, showing an increase of 3,047,638 tons. The total make of open-hearth steel in 1901 was made up of 3,618,993 tons by the basic process and 1,037,316 tons by the acid process. These figures, however, only relate to a semi-manufactured material, and it is necessary we examine the production of finished material in order to obtain some idea of American productiveness. In steel rails (1901) they produced 2,870,816 tons; in structural shapes, 1,013,150 tons; in plates and sheets, 2,254,425 tons; wire rods, 1,365,934 tons; and other rolled products such as bars, skelp, cut nails, open-hearth steel rails and iron rails, 4,845,002 tons.

In the production of these enormous quantities it is generally thought that the United States Steel Corporation has a complete monopoly. I remember well the panic caused by reports of its formation, especially in the Midland districts. The fact of a billion dollar steel trust being formed was such an unheard-of and gigantic combination as to almost turn the brains of English manufacturers. There was another factor which added acuteness to the fears entertained at that period. We had just crested the wave of a remarkable period of prosperity, prices had been foolishly rushed up in every branch of the iron and steel industry, and there was scarcely a limit to the unrivalled optimism everywhere prevailing. Manufacturing prices had sharply receded in the United States just at that period (October, 1900), and the American manufacturer taking advantage of our abnormally high prices slipped in, and completely winded the English manufacturer. The pity is that several of them ever recovered. The British iron trade, and the workmen engaged in it, would be infinitely better off if an earthquake could swallow up many of the obsolete works of manufacturers who "bleed" their works to death in times of good trade, and "grind" their workmen in periods of adversity. Large trusts have their inherent defects, but I am convinced from my investigations that the workman has less to fear in the long run from the operations of concentrated capital than he has from the impecunious employer with his frantic efforts to dip into the wages of his already underpaid workmen.

The following figures will show the exact position of the United States Steel Corporation in relation to the total trade of 1901. They mined 43·9 per cent of the iron ore; they produced 42·9 per cent of pig-iron, including Spiegeleisen and Ferromanganese; 66 3 per cent of Bessemer and open-hearth steel ingots and castings; 50·1 per cent of all rolled products; and 65·8 per cent of wire nails. Their highest percentage of make in any particular branch was 77·6 per cent of wire rods. This large percentage, however, is inclusive in the 50·1 per cent of all rolled products. These figures, while disproving the statement that the U.S. Steel Corporation is a monopoly, show the magnitude of their operations and that they have the power to practically fix the price of either raw or finished material. There are some few wealthy and well-equipped concerns outside—as for instance the Republic Iron and Steel Co. with a capital of 55,000,000 dollars, the Lukens Iron and Steel Co , the Sharon Steel Co. (they have excellent plants), and a few others whose positions, both by the equipment of their plant and their financial stability, are secure. But there are a large number—I should estimate them as producing 20 per cent of the total product—who will probably not weather the storm of adversity when the next cycle of trade depression comes round. It is quite a mistake to imagine that all the plant and methods of American production are up-to-date. It is equally untrue that they can ever be made up-to-date. Like many of our own mills, they will have to be "scrap-heaped." Even their tariff cannot save them, and they are looking forward with a concern more intent than our own manufacturers to that time when only the strong and provident can survive—though just at present the country needs all the iron and steel it can produce. Let me give one illustration proving the poor equipment of many of their mills. The total output of steel rails last year (1901) was 2,870,816 tons. Five rail mills which I have visited can produce four-fifths of this output, yet there are 45 rail mills enumerated by the Iron and Steel Association, and there are 15 distinct separate rail plants. There is, however, another phase of danger which several of these "independents" anticipate, indications of which are already apparent. It is within the power of the U.S. Steel Corporation to keep up the price of raw or semi-raw material while keeping down the price of the finished product; the large exportations of crude unfinished steel also tend in this direction, and it has been suggested to me, that when the necessity arises there will be no difficulty by this method in freezing out nearly all, if not quite all, the small independent concerns in the States.

The question may here be asked, what is the secret of the enormous development which has taken place during the last few years? It should be remembered that the recent period of prosperity, from 1898, has not been peculiar to America, but on the Continent and in our own country we have experienced an altogether exceptional boom. During the previous years of depression, from 1893 to 1897, American industry was much more depressed than our own; failures and bankruptcies were common, and a general demoralisation of trade existed unequalled in intensity throughout the world. The present cycle (unprecedented in the United States) has, however, lasted longer and contained greater elements of stability than in our own country, and to a far greater degree than in Belgium or Germany. Undoubtedly the greatest factor in America has been their own increased requirements, resulting from the natural development of the country. I have referred to the demand for structural steel consequent upon the recent growth of structural steel-framed buildings. More than one half of the structural steel rolled is consumed in buildings and bridges alone.

The general development of the trade of the country has necessitated such heavier traffic that long sections of railway have had to be relaid with heavier rails, and the rebuilding of the bridges had become an urgent necessity. The manufacture of steel rails has consequently increased by nearly 1,250,000 tons since 1896. It seems strange, however, that with all these

necessary home requirements the total output of steel rails in 1901 was only some 700,000 tons more than 15 years ago. The rail mills have at the present time 2,000,000 tons of steel rail orders on their books for 1903, besides arrears of about 500,000 tons over from the present year (1902); and I am informed on reliable authority that the U.S. Steel Corporation have orders on their books to the extent of 5,000,000 tons.

Another factor has been the consumption of steel in the manufacture of steel cars—quite a new industry. There is a very great shortage of freight cars, and the Pennsylvania Railway Co. alone has ordered 15,000 cars for immediate delivery. The Pressed Steel Car Co., with a capital of 25,000,000 dollars, have a capacity of 35,000 steel cars, 120,000 truck frames, 250,000 bolsters, and 18,150 centre plates. Lake traffic has also considerably increased; bridge-building requirements are very much in arrears, all of which are giving an exceptional impetus to the plate trade. The boom is as much a surprise to the American manufacturers as to any one, and the railway companies frankly admit it is such as they never anticipated or were prepared for. At the beginning of 1899 there were only 200 blastfurnaces blowing, less than half the total number but before the year was out, I am told by a good authority that many of the producers earned an amount equal to the entire investment of their plant. The great consolidations followed, prices were immediately controlled into greater uniformity, and lowered to a more reasonable level, and it is, I believe, largely attributable to this fact that no such collapse in trade occurred in America as took place in this country. Throughout the States there are universal evidences of having entered upon a new era in the demand for iron and steel for purposes hitherto undreamed of. The home demands and requirements are stupendous, and the resources of the producer have been taxed almost to the uttermost.

Another notable feature in connection with the iron and steel trade is the fact that during last year and this (1901 and 1902) they have had a decreasing export and an increasing import trade. It is recognised and admitted by their best authorities that their exports of recent years, previous to 1901, have been exceptional and made under abnormal circumstances. As I have already pointed out, the want of cohesion and organisation on the part of British manufacturers in keeping a steadying check upon prices in a rising market was America's opportunity which she was not slow to take advantage of, and her manufacturers admit their inability to carry on their competition with anything like the success of three years ago, now that our prices have receded to a more normal level. Mr. Swank, the well-known authority on American industry, referring to us, remarks: "Their cheap labour and improved methods of manufacture are agencies which are not only enabling them to hold their own markets, but to actively and aggressively contend for the possession of neutral markets."

There is, however, a tendency to ignore or overlook the nature of the material which we import into this country from the United States. An examination into our imports from that country, during the period of panic I have referred to, will show they consisted largely of semi-manufactured material in the shape of steel blooms, or sheet bars. The enormous mineral deposits—as cheap as they are great—enables them to manufacture this crude unfinished product at prices greatly below what are possible in this country. To carry the process of manufacture further is relatively much more costly to them, because of the higher cost of labour, and the American manufacturer finds it pays better to export his crude steel, very much the same as our British manufacturers have found it occasionally more profitable to export their pig iron, even at the expense of the finished product. The pig makers of this country exported during the year 1900 nearly a million and a half tons of pig iron. Home prices of raw material consequently rose to a higher pitch relative to the price of finished product than perhaps was ever known before, and it was under these circumstances that British manufacturers bought so largely

of foreign bars and billets for their rolling mills. Let me take the sheet trade to illustrate this. During the last three years sheet manufacturers have purchased thousands of tons of foreign steel sheet bars at prices ranging up to £1 per ton cheaper than they could be produced by our home manufacturers, owing to the high price of raw material. These loom largely in our imports, and accentuate the cry that we are losing our industry; but such a statement is one sided. The importation of these bars presses hardly upon the few English producers of such a commodity, but this is more than outbalanced by the benefit to the total volume of our trade. The amount of work involved from steel bar to finished galvanised sheet or tin bar, the wages paid, the labour employed, embrace far more than from ore to bar, while at the same time British manufacturers, with this advantage of a cheapened crude material, are much more favourably placed in relation to the production of the finished article and the trade of the world.

Whatever may be the opinions in this country upon the application of protective principles to British industry, it is generally claimed that the American iron and steel industry has been built up by the agency of their tariff laws. It would be going beyond the limits of my report to discuss this question, but I was greatly interested in noting that while there are strong and powerful agencies at work endeavouring to bring about a revision of their existing tariff laws, there is a strong aversion amongst iron and steel manufacturers to any alteration or revision. Probe the American iron and steel industry sufficiently deep and it reveals the fact that in spite of unlimited supplies of raw material, cheap transit, latest improvements in machinery, and enormous concentrations of capital, the wealthiest manufacturers strenuously assert the continued necessity of prohibitive tariffs as the only means of maintaining and securing their home trade against outside competitors. The strongest—the most vehement I might almost say—advocates of protective tariffs are to be found amongst the iron and steel manufacturers — the industry most advantageously placed in regard to natural deposits and facilities. What does this contention imply? That very much of the American industrial position is both limited and artificial, and remains yet to be tested and proven. I have already referred to the large percentage of works where there is poor equipment and small output; it remains yet to be seen how the best equipped works will bear the weight of their capitalisation when the recurring cycle of industrial depression comes round. It may be that these tariff foundations upon which the trade has been built will not even support the weight of the structure. But there is another reason: The American manufacturer looks forward to the time when the supply will greatly exceed the home demands, and he will have to secure new markets. As I have already said, there will be a weeding out of their own works before that time comes round, but the present enormous home demand and requirements will not always exist, and what more convenient than an accommodating protective tariff whereby the home consumer shall bear the cost of the exploitation of neutral or foreign markets? The question is beyond the limits of my report, but it should be open to practical discussion how far any nation should be allowed to exploit our markets out of what is practically Government support and taxation. I am not now, however, concerned with the question of their tariff beyond the suggestion that their vigorous advocacy of its retention has a very important bearing in a comparison of the industrial abilities of the two countries, not altogether unfavourable to us.

I shall now notice the manufacture of some of the leading commodities, such as plates, rails, sheets, wire rods, etc., wherein the best equipped works are far ahead of us in the outlay of their plants and their productiveness. I wish it to be understood that I made my visit with as open a mind as it was possible: I expressed a desire to see the best and worst of their mills—which, I fear, is not always done in inquiries of this character—and I have spoken freely and frankly both in relation to what I have seen and heard, and given my own

deductions and observations with the least possible bias. It may appear that I have endeavoured to detract somewhat from the high state of perfection generally attributed to American manufacture, but I can only assure my readers that such is not the case, my only desire being to state things as I see them with my own eyes, and not those of another, and record them as correctly as I possibly can.

There is no doubt that the leading mills of American manufacture are far ahead of our own best mills in their arrangement and outputs. I have seen nothing like it in this country—either in the matter of output or labour-saving appliances. To the average British iron and steel workers the output of these mills will be incredible. Take the Illinois plate mill of South Chicago, where they have rolled 318 tons of finished plates in 12 hours. The fortnight previous to my visit they had rolled in their one mill 6,060 tons, quite a large percentage of which were down to $\frac{3}{16}$ inch thick, and the number of men round the rolls were—one roller, three hookers, one screwer, and one tableman. The mill consists of two stands of rolls, 34 × 90 and 34 × 132 inches. They have four gas heating furnaces fitted so as to use gas or oil, and two mechanical chargers better than anything I have ever seen, with an excellent 40-inch slabbing mill in which they can also roll billets down to 4 by 4 inches. The slabbing mill has only been down about three years, previous to which they rolled direct from the ingot. The roll changing appliances are such as to enable them to change their middle roll in 13 minutes. They have ten open-hearth furnaces, one 35 tons Siemens acid, four 50 tons basic Wellman rolling, and five 30 tons basic Siemens. I might say here that the Wellman charger is in general use throughout the open-hearth plants of the country.

It is quite unnecessary to go into details of the several plate mills for the reason that they are largely constructed upon the same principle. Americans believe in three high rolls for plate work, and though there are a few reversing mills, the majority and most up-to-date mills are three high. Another characteristic is the enormous space occupied by these mills. There is no "flooring" of plates and picking them up again, all plates travelling on live rollers from the mill on through the flattening rolls, on to the shears and trucks on one continuous level. I speak now of the best mills. Everything is continuous.

I would like to remark here that there is no such thing as waiting for inspectors; the cost and labour involved in unstacking for their inspection, as we often have, are thus saved. The inspector is notified of the exact time when any plate, requiring his inspection, is to be rolled. If he is not there the company roll, shear, and load the plate; and it entirely rests then with the inspector when, where, or how he can inspect it.

Another important item in successful mill work is the facilities for "feeding" the mills. Such a thing as waiting for the furnace is unknown, and the charging and drawing appliances are perfect. Electricity is generally the motor power for all such work. I am bound, however, to say that the "finish" at the rolls will not at all compare with the finish of our own plate mills, and this remark will also apply to their small jobbing mills rolling strong singles. To finish as we do would seriously curtail the output, and so the defect is overcome by the "flattening" processes, which are not in existence here. The plates go straight from the rolls through flattening rolls which takes out all "buckle," and so far as I can judge or find out, puts, without labour, a finish equal to what has to be done by our roller sometimes with some amount of difficulty, and at the expense of considerable time on thin work.

Universal mills are of course "reversing" and used for narrower sizes where unsheared plates for bridge building, etc., are rolled with exceedingly small cost of labour. There is an exceptionally large home demand for these plates, and there is scarcely a limit to the output and

length of plate that can be rolled in these mills. The universal mill at Homestead—one of the best I have seen—rolls down to a thickness of No. 8 gauge, and is practically controlled by one lever man and a screw boy, whose united wage is 12 dollars per shift. Whether such mills could be kept going in this country I must leave others to determine, but I want strongly to enforce here a statement already made—that one of the essentials to American mill success lies in the excellent and perfect arrangements and facilities for feeding the mills.

Slabbing mills are of very quick speeds, quicker than any I have seen in this country. I am of the opinion, however, that some of our newer slabbing mills are equal to the average American mill, and if well fed could supply material for very much larger mill make if required. It may be, however, that even here again the American mill is ahead of us in respect to strength as well as speed. It is only fair to again point out that the bulk of American plate trade (outside their boiler-plate trade) is used for freight cars, engine-tenders, bridges, and such like. Our own is mostly for ship-building purposes, and require much more care and finish in every respect. I am inclined to think that one of the great drawbacks in a few of our own best mills is not so much the mill itself, as the absence of proper "feeding" facilities.

The same excellence of arrangement characterises many of their best rail mills, such as South Chicago, Jolliet, Lorraine, Ohio, and Braddock. These mills vary in construction and output. The South Chicago mill has four stands of rolls (it is practically a double roughing) with a three-high 27 inch finishing train, fed by a three-high 40 inch blooming mill, the output last year being 842,325 tons. They have three 12-ton Bessemer converters, and twelve 10 ingot soaking pits. It may be of interest to give a few outputs of their Bessemer plant. Their average number of blows is about 162 in twelve hours, producing 1,758 tons. The largest output in twelve hours was1,773 tons. The largest weekly output was 19,350 tons, and the largest month's output was 80,709 tons. Owing to the small percentage of silicon (about 1·00 and at times only 0 90) they blow very quickly, taking on an average from nine to ten minutes. This applies to all Bessemer plants. The longest blowing I have found was 11 minutes per blow.

Another important factor in the comfort and dispatch of Bessemer work is the casting of all ingots on the cars. These cars containing two or three ingot moulds are drawn out of the shop directly the cast is received, which makes the work cooler and easier for the men employed. "Mixers" are in general use, but at this place they have "double pouring," which they say gives a better fusion of the carbon and manganese.

Jolliet has two 10-ton converters, and one 36-inch blooming mill. They do not roll direct from ingot and have seven mill heating furnaces feeding a 23-inch rail mill. The output here is about 700 tons per shift.

Lorraine mill is an exceptionally good mill from its adaptation for "trams" and girders. They have two 12-ton converters and 38-inch blooming and roughing mills with a 27-inch rail mill. I regret they were not rolling "trams" on the occasion of my visit, to see which was my principal object in visiting this mill. It is interesting to note that the mills are driven by Galloway engines. The average output is about 700 tons per shift.

The Ohio rail mill is certainly a less complicated mill and is better adapted for rolling rails. There are two Bessemer converters averaging over 100 tons per hour. They roll direct from the ingot, and the mill is fed from six large 4-hole soaking pits. I find I have omitted the average output of this mill, but it will run South Chicago a very close second. From the cursory view I necessarily had, owing to limitation of time, I consider this mill and the large Edgar Thompson mill—as rail mills—the best mills it was my pleasure to visit.

At the Edgar Thompson Works, Braddock, they have two mills, one 23-inch and one 27-inch. There are four 15-ton Bessemer converters. One three-high 40-inch blooming is fed by seven vertical furnaces with 32 holes. The small mill rolls from 25lb. to 70lb. rails, and an output is obtained of 300 tons per shift of 25lb. rails; the average output, however, is about 400 tons per shift. They roll from the bloom, with exceptionally good electric appliances for charging and drawing. The record of the big mill is 1,200 tons in 12 hours, but the average is 900 tons per shift. One of the special features of this mill is an arrangement whereby the rails are allowed to cool before the last pass, which is found to give a finer structure, and, of course, tougher and more wearing qualities. The delivery and despatch from this cooling table is so admirably arranged that I do not think this cooling impedes the output of the mill, though producing a better quality rail.

It is almost impossible to over-state the arrangements of these mills, the perfect despatch with which everything is done, and the incredibly small amount of manual labour required in comparison with our own mills. Everything is straight and continuous. Not only are the mills well fed, but such is the space and equipment that there is no hitch or block through to the finish. From leaving the furnace there is no handling of material until the rail is slipped on the straightener's block. Straightening is the only thing for which no adequate labour-saving appliance has hitherto been found, but even the work of the straightener is considerably lightened by the passing of the rail after it leaves the saw through a pair of cambering rolls, which takes out all buckle, and gives it a uniform "sweep." As illustrating the labour-saving appliances apart from the actual mill work, I may mention that at Lorraine four men load 600 tons of rails per day of 12 hours. Their rate is 60 cents per 100 tons each. Mr. H. C. Ryding, who holds several "patents" in this mill, which he manages with such success, was intensely interested in pointing these appliances out to me. It is interesting to note, in connection with the American production of steel rails, that while they produce a total rather more than three times greater than this country, their actual railway mileage is, I believe, more than ten times in excess of ours.

In the production of wire rod rolling very great progress has been made. It was my good fortune and pleasure to spend a very pleasant evening with Mr. Wm. Garrett—one of the best authorities in the world on rod-mill work and construction. I think I may also say that very few men have had a more practical acquaintance with various nationalities of workmen, and here is his estimate of the English workman. "Your average English workman can work anywhere with equal results given equal facilities. There are with very few exceptions no workmen in the world so expert, or who can stand so much, as the English workman. Treat your workmen like men instead of machines, utilise their brains, encourage suggestions, lessen the distance between the manager and his men, and the result will be beneficial to both." I found this sentiment all through my investigations. "I have never yet"—said Colonel French, of the Republic Iron and Steel Company—"put a workman on his honour and been disappointed." Such are only a sample of statements made me throughout my visit.

The American rod mills I saw were the Jolliet Works, containing two Garrett mills fed by four furnaces, and producing about 400 tons per shift. I also saw the Sharon combination mill, consisting of five trains of rolls—one blooming, two bar, and two rod, the latter being fed by four continuous heating furnaces, and having six stands of 10-inch roughing, and about seven or eight stands of finishing.

The average chemical standard of Bessemer wire rod is given as—carbon 0·10, phosphorus 0·09, sulphur 0·08, manganese 0·45. The American manufacturer will not roll rod below 5 gauge, by which he gets his large outputs. Mr. Garrett says that while the acknowledged standard

size is No. 5 gauge, not 80 per cent of them were rolled so small as that, but were at least half a size larger, though called No. 5. Wire for nails, barb fencing, galvanised wire, weaving wire for all purposes for which soft wire is used, is drawn from a rod 4½ x 5, and many thousands of tons of 5 x 7 down to No. 20 without being annealed, and from this stage, after being annealed once, drawn down into the finest wire of the trade requirements.

In thin sheet mill-work there is very little to show in the way of labour-saving appliances, though they are infinitely superior to us in the general outlay in their plants and mills. In the recent constructions of our own sheet mills by such firms as Messrs. Lysaght and Summers, common-sense methods are being adopted, greater floor space is provided, higher and better ventilated roofs, stronger rolling gear, overhead cranes, and, above all, great engine power supplied. I regret that this cannot be said of all the modern mills put down within the last five or six years, while a large number of our mills, especially in the Midland district, are entirely obsolete.

The greatest producers of galvanising sheets and black sheets are the American Steel Sheet Company, one of the constituent companies of the U.S. Steel Corporation, and of which Mr. Geo. G. McMurtry is president. I desire here to acknowledge the great services rendered me by Mr. McMurtry in securing me admission to any and every work desired. I can truly say that his generous kindness, and that of Mr. John Jarrett, towards me, and interest in my mission, made my visit as pleasant as it was profitable. There are about 20 separate works incorporated in this company, with an annual capacity of 247,000 tons open-hearth ingots, 8,400 tons of charcoal blooms, and 29,500 tons of puddled bars; 53,000 tons of plain and black sheets, 160,000 tons of galvanised sheets, and 193,000 tons of steel sheet bars. I visited the Ætna Standard Works, and also the Vandergrift Works, about 40 miles from Pittsburg. At the former works only the jobbing mills were working at the time of my visit, viz., two 60-inch and three 38-inch mills. These were interesting as showing the manner in which labour-saving appliances are utilised wherever possible. The back-racks in the 60-inch mill were convenient and well constructed, while the excellent arrangement of "goose-neck" rests and the absence of "flooring" dispensed with a great deal of labour. The actual work at the rolls was nothing superior to what our own men accomplish in similar mills with less suitable material.

The ideal sheet mill work of America, however, is situated at Vandergrift, and I am greatly indebted to Mr. E. W. Pargny for his kindness and interest while seeing through the works and obtaining an excellent view of the charming town. There are four 30 tons acid, and two 30 tons basic open-hearth steel furnaces, four four-hole Siemens' regenerative gas-heating furnaces, one reversing blooming mill, feeding a continuous bar mill, containing two groups of three pairs rolls each, rolling bars for sheet mill purposes, eight inches in width. The sheet mills numbered 29, all in a continuous row, form one of the finest plants of sheet mill construction I have ever seen. I have not the exact length of the entire mills, but should estimate it from 1,200 feet to 1,300 feet traversed by exceptionally good over-head electric cranes, by which all rolls and ulsters are changed. About 25 minutes is the ordinary time taken in changing, although it has been done on isolated occasions in half that time. All rolls are turned in the lathe. There are eight mills on one engine, which can develop 2,000 h.p. Steam is generated by about 45 Cahall boilers. The annealing furnaces (about 40 in number) are of the ordinary type. I have often wondered why some enterprising firm has not substituted vertical annealing-pot furnaces in place of the existing horizontals. It will be sufficient here to say that all subsequent processes of pickling, galvanising, etc., through to their enormous stock rooms, are carried on under the same perfect arrangements, and never has it been my pleasure to visit any work which excited so much

admiration and surprise. The nearest approach to such work can be seen in this country at the two places I have already mentioned. The percentage of "waste" sheets is one-half per cent, and the percentage weight of finished sheets to steel bar is practically 87 per cent. This means that out of every hundred tons of steel bars sent into the mills, there is a finished product of 87 tons. The method of working is somewhat different from our own practice. All bars have first a couple of passes through a pair of roughing rolls instead of going to the finishing rolls direct. This is a common practice in American sheet mill work; it has the advantage of obtaining a cleaner surface, and I do not think it retards the mill's output, because by this method more heat may be given to the bar, more screw pressure can be put upon the initial passes, and the heat of the finishing rolls kept more uniform. In rolling Latten gauges the method adopted is also different, in that while we work one heat upon the other in the pack furnace, finishing off a heat after "running over," they work smaller heats, and finish off each heat after doubling; rolling, of course, a few pairs of the succeeding heat to fit the rolls for finishing. The "doubling" is all done by steam pressure, but the same process can be used with hydraulic power. The connected long spanner screwing might appear awkward at first sight, but when accustomed to it I should say was preferable to our own methods.

It is certain that we have no mills in this country turning out such admirable work as I saw at Vandergrift. Why? Let me say very explicitly that the fault does not lie with our men. I would guarantee to man the whole 29 mills at Vandergrift with heaters and rollers who would, within a fortnight, turn out at least equal work with equal results. It is not a question of men, but methods. In the first place they have a natural advantage over us in their natural gas for their pack furnaces, the perfect combustion obtainable enables them to get a soft yet solid pack greatly superior to what is possible with coal fire furnaces—always liable to smoke or air draught. Their great advantage, however, lies in the material. In the first place they make their own steel—soft and uniform; every bar is inspected before going into the mills, and nothing but perfect bars are used; no sign of a crack or flaw, and exact to width and thickness. On the other hand we have the exact reverse to all this. Uniformity is unknown except by accident, and as to inspection of bars for flaws or cracks, such a thing would be considered monstrous. Rusty bars are as common here as they are unknown at Vandergrift, while the bars will often vary several pounds in weight for the same orders. When our employers will pay more attention to these elementary matters of manufacture they can be assured of results equal to, if not better, than those of America. So far as rolling from piles is concerned, manufacturers had better recognise that the practice is doomed to extinction. Even where practised there is practically no attention given to secure a good solid pile. Anything will do for it; the most slovenly methods are used in its make, and in nine cases out of ten for every shilling saved in the "pile" five shillings are lost in the finished sheet. It is so easy to blame the workman for all this and prate upon his wastefulness and inferiority, but if the best of American workmen had to come here and work they would be as great a failure as many of our managers would be in America.

I should like to say here one word about the town of Vandergrift. It is indeed a model town, exceeding such places as Port Sunlight and Bournville—both of which I have seen. It is entirely the development of Mr. McMurtry, who may well be proud of the conditions under which his men work and live. I visited several of the homes and was greatly interested. Over 80 per cent of the workmen own their houses, which are very large, comfortable, detached, consisting generally of veranda, fine entrance hall, three to four reception-rooms, kitchen, three to four bedrooms, and bathroom; they are heated throughout with natural gas, which is used for all cooking purposes, and are fitted up with electric light. They vary in size, and cost from fourteen hundred dollars to three or four thousand dollars, according to the requirements and

tastes of the workman ; but all are noted for their architectural design, which lends a picturesqueness to the whole town such as I have never before seen. The streets are very wide, with plenty of foliage. The only restriction in the whole town is, no saloon, *i.e.*, public-house, the beneficial results of which are seen in the workman's home and family life.

The tin-plate industry in the United States is of comparative recent origin, dating practically from 1890, and built up under their tariff, which imposes an import duty of 1½ cents per pound. Prior to the year 1892 the States obtained practically all their supply from this country, and in 1891—the year their tariff came into operation—they imported nearly 335,000 tons. Many attempts have been made by American manufacturers to produce both tin and terne sheets during the last 50 years, but such was the control over the American markets by British manufacturers that they were all unsuccessful. It was a comparatively easy matter for Welsh producers to undersell their would-be American competitors, and after they were frozen out to recoup themselves by enhanced prices. So far back as 1863 and 1868 experts were sent to this country to consider and report upon the tin-plate trade, and their reports were to the effect that America could not hope to compete with the low wages ruling in this industry. In the agitation for a protective tariff in order to develop this industry these reports on Welsh wages were constantly cited, as was also the erratic fluctuations of the import prices. The increasing home requirements, consequent upon the development of the meat and fruit packing industries, together with the consumption used in the oil industry, created such a demand, and the prices of the Welsh producers were said to be quite arbitrary and excessive, all of which points were used in argument for protection and home development. This ultimately was secured, and from that period their imports have decreased almost in ratio to their increased manufacture.

There is no need to give the yearly figures of production, but the steady and continuous growth will be seen by the following :—In 1892 they produced 18,803 tons ; in 1896, 160,362 tons ; in 1899, 360,875 tons ; and in 1901, 399,291 tons. The returns for 1902 will probably be less than the high-water mark of the preceding year. The imports during the last few years have been almost entirely tin plates, which are re-exported in cans containing fruit, fish, and oil. On these there is refunded 99 per cent of the tariff, so that large consumers, like the Standard Oil Trust, have been able to buy Welsh tin-plates practically free of duty.

In the rush of development the number of American tinplate mills now exceeds the demand, consequently large numbers of mills are idle and have been for a considerable time. Employers and workmen therefore directed their attention to securing for themselves these imported tin-plate orders upon which the duty was refunded, and after several conferences and a ballot of the workmen a wages rearrangement was made in respect to these particular orders. I have talked with employers and workmen about the action, and the reply I invariably received was, "We are not going to let you cut us out with your cheap labour. Why do your tinplate workers give their product away ? We are determined to supply our own requirements, which we can do with double the wages paid in your own country." It is not for me to discuss their action in respect to these imports, but I have talked with level-headed men on both sides who now think it was one of the greatest mistakes they could have made.

In the manufacture of tin-plates, the general remarks as to the equipment of plant which I made in regard to sheet mills will also apply. The principal tinplate works I visited were the Laughlin Works, Martins Ferry, of the American Tinplate Company, and the Sharon Works of the South Sharon Steel Company. The tinplate works are all of a modern character, and in visiting one large works an accurate idea can be obtained of the industry generally. A noticeable feature is the strength of their mill trains and size of rolls, also the character of their

engines. There is no such thing as "stalling" throughout American mills. The engine power is always in excess of the outside demands made upon it. The minimum H.P. allowance per mill was 150, but even then the capacity of the engines were in excess of this. One could not help contrasting this with the feeble and spasmodic grind at many of our own works. The speed of the rolls varies, and upon this point there is a difference of opinion as with us. The general speed of the rolls is from 24 to 26, the most practical men agreeing—and rightly so, I think—that high speeds are not conducive to good work and output. I was greatly interested in investigating the merits of a rope drive I found at the Sharon Works. It is claimed for it that 14 per cent of H.P. is saved, and that it almost entirely prevents backlash. On the other hand it is said to be expensive and requires a great deal of attention to keep in repair. I think there can be no doubt as to its prevention of backlash, but I must confess I was not greatly enamoured of it. Practically all tinplate orders are worked by "matching," but there are more men employed than with us. The roller has a rougher and screwer, and the furnace-man has a helper. It is also customary for the doubler, in hot weather, to employ a helper. I am told they can often get their limited turns work out in 7 hours, and was given an instance of it being done in 6½ hours. Electricity is used to a very great extent throughout their mills. Overhead electric cranes are in every works, by which rolls are changed in a few minutes, and sheets are conveyed from place to place with ease and dispatch. Doubling shears are also driven by electric power, there being generally an encased motor for each shear. In cold rolling they are far ahead of our own methods by the use of tandem mills, the plates being conveyed from one set of rollers to the other on endless chains. A capital contrivance is also used whereby the boy attending each pair of rolls can throw off any plate which may have become damaged, and thus preventing it from entering the next pair of rolls which would be marked. Throughout their pickling, annealing, tinning and finishing processes, they are very much ahead of us in the nature of appliances and methods of work. The charging of annealing furnaces is generally on carriages which, after conveying the boxes into the furnaces, can be easily withdrawn. Overhead cranes also are used throughout their annealing departments.

I was greatly impressed with the sanitary conditions under which the American tin men work. I was in the tin house at the Laughlin Works—a house over 400 feet long—and I can assure my readers the room was as free of smoke, and the air as pure and clear, as in their sorting room. Women are generally employed in opening and sorting.

To give some idea of American natural resources I may state a fact in connection with this work. The coal mine—a drift mine—is in close proximity to the works. The seam is about five feet thick, and the coal is conveyed to the works by electric traction, and also round the works, being emptied into the various furnace coal bins from these overhead trucks. The total cost of mining, royalty, conveying coal from mine to furnace, including everything, is 75 cents per ton, and I was assured by Mr. Robinson that within a few months they would be producing a ton of finished tinplates with one ton of coal consumed. I may mention another interesting fact, though I have no means of comparing it with our own tinplate works. The total cost of rolls to the American tinplate company owning 29 works with an annual capacity of over 500,000 tons of terne and tin plate sheets was 35 cents per ton of finished material for 1901. The question may be asked—Is it possible for British producers to compete in the American market? I confess I think not, so long as the present tariff exists. What I desire to urge is the necessity of up-to-date plants (no patch-work will do), and methods so that we may doubly secure our present markets, and successfully compete in neutral ones. The tinplate trade, like the sheet trade, is over-weighted with obsolete machinery and the incubus of poverty; better far that total destruction should overtake a large portion of it, out of which would rise a living

force, equipment, strength, adaptability, which should again make its power felt with equal benefit to employer and employed. Obsolete penury cries out, "Pull down wages." Up-to-date production and equipment say, "No, reduce men's labour and increase productiveness, and thus not only establish but create trade."

In the iron trade—the puddling department and forge—there is nothing to learn or copy in America beyond their wages and the cold air draughts forced through the works to every standing in warm weather. Iron with them as in this country is becoming more of a speciality, receding into the background, and counting very little in the total trade. For certain purposes it may be required perhaps as long as puddlers exist, but I have seen no puddling which will excel or generally compare with our own. Rotary squeezers—abandoned by us years ago for the steam-hammer—are common in America. There is no attempt to question the quality of our puddled bar, though serious complaints have been made to me by employers about German puddled and tin bars.

In small mill work we are far behind many of their mills. Let me illustrate this by referring to the Brown Bonell Works of the Republic Iron and Steel Company, and in doing so tender very hearty thanks to Mr. J. Nutt for his genial kindness and assistance to me. The works consist of 41 double puddling furnaces (most puddling furnaces are double), two 20-inch three high forge mills; with a 20-inch, 18-inch, 12-inch, 10-inch, and two 8-inch mills. There is here a 10-inch mill equipped with two sets of continuous roughing rolls fed from a continuous furnace. This furnace uses billet 30 feet long and is built by the Morgan Construction Company, of Worcester, Mass. The billet is pushed out of the furnace by the heater with no effort and is carried into the first set of roughing rolls, which stand about two feet from the furnace door. As it passes through these rolls it is automatically cut into desired lengths and rolled down into rounds, flats, squares, such as might be desired. The two passes of the continuous rolls reduce the billet from $1\frac{3}{4}$ to one inch. The mill works eight-hour shifts and averages in that time 50 tons per shift. The record make in eight hours was 79 tons. There is no stress or strain or bustle; it is indeed a triumph of mind over muscle. They have also a Bessemer plant of two 7-ton converters, and a blooming mill which taking the ingot from the furnace feeds it into a continuous billet mill where it is rolled down to $1\frac{3}{4}$ billet from the ingot without re-heating. In all departments of small work the continuous process of rolling is becoming general throughout the country.

In the matter of wages, the American workman is far better off than in this country. So far as the large steel mills are concerned, there is no standard rate, and, as in this country, there cannot be, because of the great variety of mill, labour required, and output. Any all-round comparison is also rendered difficult, because with their improved appliances there is no comparison in the number of men employed or the work performed. In some of the rail mills the roller is a salaried man at a fixed rate of 5,000 dollars (£1,000) a year, and bonus equal to another quarter or a third of that amount, according to the output. Heater's wages will also vary from 7 to 13 dollars per day, according to the mill and labour. There are, however, all the elements of a fair comparison in the sheet trade, tin-plate trade, and puddling. In both countries there are standard tonnage rates governing this class of work, and a comparison works out at practically two, two-and-a-half, and three times respectively in favour of the American workmen. Very elaborate wages lists and scales are annually agreed to between the employers and the workmen's association, copies of which I have. Sheet and tin-bar mills work eight-hour shifts, with a limited output, and at some places puddlers also work eight-hour shifts; in most other departments the double shift is worked similar to this country. It has been stated that owing to the employment of black labour in the Southern States, such as

Alabama, the cost of labour is very much cheaper. True, the amount paid to the black is less per day, but I have the authority of Colonel French, of the Republic Iron and Steel Company, to state very positively that the cost of labour per ton of finished product is greater with cheap black labour than with the Northern high-priced white labour. This statement should be sufficient, seeing that this company operates more largely than any other in the South, and no man is in a better position to give an authoritative answer. The American employer has learned that cheap labour is generally the dearest, and has no hesitation in saying so.

Much has been made of the statement that men are so rushed in American works that only the young and strong can stand the strain, and that only for a short time. No statement could be wider of the actual truth. It is quite true that the clean shaving custom so prevalent gives a general appearance of youth, it is equally true that the facilities of retirement to a workman in his advancing years are greater than in this country; but from close questioning I do not find a tendency to dispense with old servants—rather there is a growing inclination to look after them. I quite agree with Mr McMurtry who does not like the sound of pension as having a taint of pauperism and obligation about it, but prefers the idea of every old servant in the industrial army being put upon the retired list with as much dignity and right as a Civil Service servant or an Army officer. I have seen rollers working at the rolls fifty, sixty, and one case of seventy-two years of age. The idea of this "young man business" has arisen from a misconception of the practice at Homestead. Questioned upon this point, the superintendent said that if a man did not prove his worth and grit by the time he was forty there was—so far as they were concerned—no further chance of promotion. On the other hand if a youth, however young, gave evidence and proof of capability, no office was too high for him, and promotion was rapid. Youth is not a barrier to promotion as it sometimes is here. Merit and ability are alone required. As a matter of fact the men who work the hardest are the salaried staff—the manager, superintendent, engineers, and foremen.

I have made inquiries from all quarters about the assumption that University men are taking the foremost places in managing and building up American industry. I am told that such is distinctly untrue, and certainly my observations and experience is that they are practical workmen who have risen from the ranks of labour, and hold their positions by sheer merit, not by the accident of birth or personal friendship in high places.

The relation between the employer and manager, and the workman in the works is not better than in this country, though I am inclined to think it is somewhat freer. There is no sacrifice of position in this, whilst it contains elements of advantage to both. The successful manager knows how to appreciate and utilise the suggestions of level-headed workmen anywhere, which he also is not backward in giving when confidence is established between them. In wages disputes and the relations between employers and workmen's organisation, they have much to learn from us. It would be helpful if a committee of the leading trade union leaders were to come over and make a personal investigation into our trade union methods and their relationship with the employer sections. There was a time in our own trade union movement when the jingo spirit was dominant. Saner methods now prevail, and a strike over a wage question is the exception rather than the rule. Whether the Civic Federation will succeed in educating American opinion up to the same level, I cannot say. An organisation of that character should be purely educational; there are times when both workmen and employers resent any outside interference. When both parties are educated up to the ideal that strikes and lockouts are both futile and criminal, that justice to both can be secured by other methods, there will be no difficulty in arriving at satisfactory mutual arrangements. There have been attempts in this country to organise similar bodies, but they failed from lack of interest—or was it from diverging

interests? It is hard to say. There is, however, plenty of educational work open to the Civic Federation, and so long as it confines itself within these limits, its work and influence must be beneficial.

I would like, in concluding, to indicate three general features of American industry to which I largely attribute their success.

1st. The enormous mineral deposits, waterways, and cheap transit.

2nd. The control or ownership by the manufacturer (through combination or direct purchase) of the raw materials—ore, lime, coal and coke.

3rd. The marvellous engineering ingenuity and initiative, remarkable through every phase of manufacture in its reduction of manual labour, combined with great productiveness.

A concluding word to my fellow working men—at whom nearly everybody has a kick in discussing questions of work and wages as the general scapegoat. The workmen who have helped to build up American industry, and have made it what it is, are largely British. I have had universal testimony to this fact. A leading manager with not, I believe, a drop of British blood in his veins, generously and frankly said to me, "Your workman is the best all-round fellow in the world. His only fault at home is that he is a bit too conservative in his work, but he comes here and takes his coat off, and soon lets everybody know the stuff he's made of." That is generally true. What an Englishman or Welshman can do in America, however, he can do here—anywhere. Make the most of your work for profit, and of your trade union for protection. Remember that this trade question is your bread and cheese, and demands your best efforts and attention.

Will my readers remember that all my remarks in this report must only be applied to the manufacturing iron and steel industry. They may or they may not apply to other branches of industry. I speak only for my own trade.

I am greatly indebted to Mr. Mosely for an unexpected and undreamed of pleasure in this American visit, and desire here very heartily to tender him my thanks and those of the trade I represent, for this opportunity of travel and experience. I can only hope that all the advantages will be derived from it to our British industry which Mr. Mosely could wish, and which he has so much at heart. My thanks to those who made my work pleasant and light are equally sincere. I cannot name them all, but must mention Mr. Geo. J. McMurtry, Mr. John Jarrett, who devoted the whole of his time in aiding me. Mr. Max M. Suppes, Mr. Wm. Garrett, Mr. James Nutt, Mr. E. W. Pargny, Mr. James M. Swank, Mr. G. A. Cope, Mr. A. Jarvis, and last, but by no means least, to the Amalgamated officers—Brothers T. J. Shaffer, J. Pearce, J. Williams, M. F. Tighe, and B. Davis. I hope some day I may have the pleasure of returning the kindness so generously extended towards me.

Answers to Questions, by Mr. JAMES COX.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. See Report.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. See Report.

Questions.	*Answers.*
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. See Report.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. See Report.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. Greater productiveness with less physical exertion, consequent upon greater adaptability of machinery and labour-saving appliances.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Similar to my own industry in this country.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. I am an ardent advocate of payment by results, which is the general practice in the manufacturing iron and steel trade.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. Output is almost absolutely determined by machinery and facilities. I do not find employers in America, however, so pertinacious over the individual workman's wages as several in this country. There the general idea is—reduce costs by improved methods and greater output; not by a low wage to the individual workman.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. No; about the same.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. Does not apply sufficiently to our trade for competent answer.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Does not apply sufficiently to our trade for competent answer.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. A very prominent manager said to me, "The greatest difficulty we have is in overcoming the prejudice of our men in the introduction of new machinery." There may be some managers in this country who would make a similar statement. In America I do not think the statement is correct in its general application, and in this country I am sure it is not—that is, so far as our organisation and wages boards are concerned. With the actions and oppositions of unorganised individuals I have no concern.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes. More so, unfortunately, than in this country.

Questions.	*Answers.*
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. Concerns the engineering trade.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. No better than our own.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. Does not excel our own men in this respect.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. No overtime in our industry in either country.
18. Are the American employers more accessible to their men than English employers?	18. No. As to managers, see Report.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Depends largely upon the man. If I were just starting life though, with my present knowledge, I would go to America.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Yes, on the whole.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) See Report. (*b*) See Report. (*c*) See Report.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) See Report. (*b*) See Report.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. See Report.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Higher wages give greater possibilities. (*b*) See Report.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Depends upon the man; also see answer to 24 (*a*). (*b*) See Report.

Questions.	*Answers.*
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) I think, on the whole, better, much, however, depends upon the individual. (*b*) Much higher. See Report. (*c*) Yes, far larger number. High rent prompts purchase, and high wages facilitate it.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. See Report.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. See Report.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Undoubtedly, yes.
30. If yes, does he *in fact* save more, or not?	30. I cannot answer, but am inclined to think he does.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No, it is our national weakness and drawback.
32. Is the American working man more sober?	32. With their lighter beers, he certainly is.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. See Report.
34. Is it true that the American workman is thrown out of work at an early age?	34. See Report.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. I cannot tell, and have no sufficient data for reply.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. Can only venture the opinion that American proportion is smaller.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. Cannot tell.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. See general tenor of report.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. See Report.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. See Report.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. See Report.

JAS. COX.

Mosely Industrial Commission.

Report by Mr. GEORGE N. BARNES, of the Amalgamated Society of Engineers.

In company with a number of colleagues, from whom, however, I was afterwards for the most part separated, I reached America on the 9th November, and left on the 25th December, having, in the time intervening, visited the following cities :—Montreal, Toronto, Niagara Falls, Buffalo, Cleveland, Chicago, Milwaukee, Cincinnati, Hamilton, Pittsburg, Altoona, Washington, Philadelphia, New York, Boston, Providence, Worcester, and St. John. I inspected 39 workshops and eight educational institutes, four of the latter being free public schools, and four schools of technology. I also visited the office of Mr. Carroll D. Wright, of the United States Labour Bureau, and the Patent Office, Washington, as well as the Government Navy yards and workshops at Washington, and a battleship at the latter place. My object in going to these naval centres was to ascertain at first hand the conditions of employment of operative engineers in the American Government workshops and navy. I had letters of introduction to the heads of the offices named, as well as to many other American gentlemen, holding positions as managers, superintendents, consulting or employing engineers, and publicists, and I desire here, first of all, to acknowledge the uniform kindness and courtesy with which I was everywhere treated. Every desired avenue of information was freely opened, and every facility afforded me to make the best use of the time at my disposal.

I shall state the main facts first in regard to Canada, and then regarding the States cities in the order in which they were reached. I shall then deal with the other points of a more general character by answering the questions put to the delegates.

But, before proceeding, it may be as well to state briefly the main conditions obtaining in Great Britain, so far as the engineering industry is concerned. Educational facilities here consist of the Board schools supplemented by a few scholarships, and technical schools, some of the latter being subsidised by public bodies, but all of which are, I believe, ineffective, as far as the working classes are concerned, because of the absence of preparatory schools. The training of the workman is confined mainly to the workshop, and workshop apprenticeship lasts five years, terminating at 21 years of age. The normal working week ranges from 48 to 54 hours. The standard minimum rate of wages at places here, corresponding to those visited in America, are as follows :—On the Clyde, Tyne, Wear, Tees, and the larger towns of Lancashire and Yorkshire 8d. per hour, in Sheffield, London, Belfast, and the South Wales large towns it is 8¾d. in those shops working nine hours per day, and 9¾d. in those working eight hours. The average rate, however, for competent men is from 2 to 3 per cent higher. Overtime is paid for at about 11d. per hour throughout, and the earnings of the pieceworkers amount to about the same. The pay of the operative engineers, otherwise the artificers, in the Royal Navy, begins at 5s. 6d. per day, and reaches its maximum at 7s. 6d., except for the very small number who attain to warrant office rank, after many years' service, and who may then get 10s. 6d. per day.

Cost of Living.—Rent ranges from 7s. to 12s. per week for from three to six rooms. Bread is 5d. per 4lb. loaf throughout. Coal varies considerably in price, according to distance from a coalfield, but may be said to average £1. 1s. per ton.

Saving.—Operative engineers in England save but little except for special purposes, and except those who, through building societies or trade unions, are part proprietors of their dwelling-houses, and these may number two per cent to three per cent of the total.

Just one more observation before proceeding. The wages quoted here following will not have reference to specialists or handy men, unless so stated. These latter are paid about 20 per cent lower than the mechanic in both countries, but in America they are far more numerous than in Great Britain, excepting in the Government workshops. The figures will have reference to the mechanic, meaning by that term the man who has served an apprenticeship, or who has acquired a knowledge and aptitude in the use of the tools of the trade, which enables him to earn mechanics' wages. Such men in this country are known as "engineers," and in America as 'machinists."

I began my tour and ended it in Canada, proceeding *via* Montreal and Toronto through the States cities, and embarking again at St. John, New Brunswick.

Canada presents, in regard to education, some striking contrasts. In the province of Quebec there is no public provision, and in its cities, including Montreal, the education of his children involves a serious item of expenditure to the workman who incurs it. In Ontario and New Brunswick, on the other hand, there is a free system, not only of elementary, but of continuation schools as well, right up to the Universities, and a certain number may enter the latter through scholarships.

The basis rate of wages in Montreal is about 21 cents, and in Toronto 23 cents per hour, some being rated up to 25 and 27 cents. The working hours are 55 per week. There is no additional overtime rating except for Sunday work. There is no piecework so far as I can ascertain at Toronto, but it is a good deal in vogue at Montreal, where I found the shops but poorly equipped, the sanitary arrangements especially being of the meanest description. The earnings of the mechanics who are on piecework ranged about 30 cents, or 15d. per hour, and the specialists earn about 23 cents on ratings of about 17 cents per hour.

The rate of pay at St. John is somewhat less. I was delayed at the place on my return journey, or otherwise should not have made inquiry there. St. John is a most interesting place, however, being the oldest city in the British colonies, and known as "The City of the Loyalists," so named because of the fact that it was founded by some 3,000 loyalists, who came out of United States territory at the close of the American revolution. In the days of wooden ships it was noted as one of Canada's chief industrial centres, but when iron ships came into vogue it fell back in the industrial race. The great fire of 25 years ago put it further in the background, but it has since recovered, and is now the winter port for the Canadian steamship companies, and it also does an extensive business in the manipulation of cotton, lumber, and iron. There are two small marine and general engineering works, at which the hours of labour are 54 per week, and the wages from 10 to 13 dollars. I direct attention to the wages at St. John, because I desire to show that the wages in the smaller towns in America are less than those to be quoted as ruling elsewhere, just as in Great Britain wages are less in towns other than those in the area mentioned as corresponding to the area of investigation in the States.

The cost of living in the Canadian large towns mentioned is about the same as in London, some articles being less and some more in price, on the whole, rather more than less. Bread is 2d. per pound, rent is about 9s. per week for four or five ordinary small rooms in a flat. Clothing is 25 to 35 per cent more costly, and laundry work, as well as other small items of luxury and amusement, is about double as dear as in England. On the other hand, butcher's meat and fruit are cheap in comparison. At St. John, and presumably at other small places, the cost of living is somewhat less. In regard to saving, I had but little opportunity of ascertaining the exact position, but it is safe to say that saving is a good deal more practised than in Great Britain; and, in regard to the owning of houses, I find as the result of close inquiry that about 12 per cent of the engineers own the house they live in, and some a good many more besides.

In the United States, the lake cities of Niagara, Buffalo, and Cleveland were first reached. The Niagara Falls, as a great sight, does not, fortunately, come within the scope of this report. I could not do justice to it. A few words may, however, be given in regard to the power stations of the Niagara Falls Power Company, which are situated on the Niagara River above the falls. This river comes down from Lake Erie, and, gathering force with the narrowing of its channel, rushes over the falls, and on again to Lake Ontario some miles further on. As it nears Niagara there is a difference in the face level of some 50 feet to the mile, and it is in this part where the houses in question are situated.

There is an intake some few hundred yards long, the perpendicular sides of which are perforated; and a few feet out there are large sieve protectors to prevent ice flow or refuse going through. A ceaseless flow of water passes through the perforations and into the pits, which are 140ft. deep, and, of course, parallel with the intake. The water is precipitated through 9ft. columns to the turbines below, there being ten of these latter on the one side, and eleven on the other. The lead of water is so arranged on entering the turbines as to hold the whole weight (some 64 .tons each with shafting and generator) in equilibrium. The generators are on the ground floor, and are run horizontally so that there is no gearing, the turbines being at the bottom end and the generators at the top of each shaft, which is hollow between and solid at the bearing parts throughout its length. Each is run at a speed of 250 revolutions, and generates power up to 5,000 h.p., which is distributed for driving and lighting purposes over an area of 24 miles to its farthest point, with a leakage loss of some 15 per cent.

In addition to these there is also another station in full blast on the American side, and one is about to be constructed on the Canadian side. This latter is somewhat different in design. The plan there is to hold up the water on the higher level by a dam, and then to build a reservoir or intake from which the water will be carried through steel pipes to a point just beyond the falls, and then shot down to the water wheels or turbines at the surface of the lower portion of the river. The outlet here will involve no trouble or expense, and it is expected that the structural cost per horse power will be less than £20, as compared with £30 on the New York side. It is confidently predicted that the district will become a most important manufacturing centre.

I think I should mention one of its factories, though it is somewhat of a digression to do so. This is the factory of the National Food Co., which for splendour of design, attention to the needs of the workpeople, and public spirit generally, excels anything I have seen elsewhere The sanitary arrangements alone cost £20,000, there are elaborate provisions for the education and recreation of the workers, and even congress halls for the use of visitors, all to be had free. There are also dining halls for the workers at which viands are served at cost price, under conditions as to cleanliness and general surroundings equal to those of a high-class restaurant.

As yet, Niagara is not a competing centre in engine or machine building, so that I need not dwell upon its conditions. I may say that the wages of engineers there range about 27 cents per hour, or 14½ dollars per week of 54 hours. The cost of living is higher than in Canada, bread being five cents per lb., rent up to 15s. per week for five rooms, and clothing 70 per cent more than in England for good suits made to measure. The best cloths in America are imported from England, and bear a heavy import duty of, I think, about 30 per cent.

BUFFALO.—After Niagara Falls the next place was Buffalo, some 25 miles distant. Buffalo is the American inland port at the eastern end of the Great Lakes, and its general features engaged attention more than its engineering workshops. I may just say, however, in passing, that the wages of engineers in Buffalo are about the same as in Niagara, and that the working week is slightly longer, being 57 hours.

Buffalo handles, or has facilities for handling, about 225 million bushels of grain yearly, but has storage capacity for less than one-tenth of it, so that for the most part it is passed through. It is brought down from the west country in ships specially constructed, and some of them up to 8,000 tons carrying capacity. The main features of the place are, therefore, its immense grain elevators.

What engaged most attention there, however, was the works, now under construction, of the Lackawanna Railway Company. It is said that these will be the finest steel works in America, capable of turning out about one-tenth of the entire steel production; and there are also very fine engineering shops on the same ground. A sum of £8,000,000 sterling is to be expended, and already a good deal of work is going on. The engineering shops were the best that I had seen up to that time, being stocked with the best modern plant, and being capable of turning out high-class work.

CLEVELAND was the next stoppage, and here I had an opportunity for the first time in the States of going over a public school. It was one of the five high schools of Cleveland, attended by 1,300 pupils, and officered by 45 teachers. This school is one of the continuation schools, open quite free to pupils after leaving the primary at 14, and the average age on leaving the high school is about 18. It follows on with the ordinary curriculum to higher grades. There are other high schools to which pupils may be freely sent after passing through the primary schools, which are called "mechanics' arts" or "manual" schools, and in which the pupils (boys) are taught to work in wood and metals; of these I shall have something to say later on. I was very favourably impressed with the school visited at Cleveland, where I found a splendid equipment, so far as building and the most expensive parts were concerned, though the pupils had to provide their own books. I found here pupils from all classes of society, and I should think that the merging together of the boys and girls from working class homes, and from the homes of those well-to-do, must have a good effect all round.

Cleveland is the chief port for the distribution of iron ore from Lake Superior, and has steamers of very large carrying capacity and special construction to bring it east. It has also become in recent years one of the centres of machine tool making industry. I visited six workshops here, five of them being tool shops, and the other the works of Browns', the well-known hoist makers. I found Cleveland to be a most brisk and up-to-date place. The wages are from 2½ dollars per day upwards, and I found many rated at 2¾ and 3 dollars, and some even beyond that. I also found the hours of labour different in the different workshops, one place, engaged chiefly in making twist drills, working 60 hours per week, Browns' hoist people an averge of 57 per week, and others down to 55. At least two of the places mentioned were connected with

combinations, having workshops elsewhere, as for instance the Chicago Pneumatic Tool Co., the chief works of which are, as a matter of fact, at Detroit. At one place here I noted, with some regret, women engaged in attending machines. They were fluting the drills, and earning about 1¼ dollars per day on piecework. In only two of the shops visited was piecework in vogue, and in one of these, the Acme Nut and Bolt Machine Manufacturing Co., the manager told me that the prices had not been altered for years, and the men earned an average of 3½ dollars per day.

I found in Cleveland, for the first time since reaching America, some little regard shown for the comfort of the engineering workpeople. At Warner and Swasey's, machine tool and astronomical instrument makers, the sanitary and similar arrangements were fairly good, and the place kept clean. The Cleveland Twist Drill Company's shops are even better in these respects. Browns' are also about to build a dining hall for their workmen, of whom there are 1,000, and they have already made provision in this respect for their office staff. The Cleveland Chamber of Commerce makes a speciality of these industrial betterment schemes, a secretary being employed to ascertain what is being done elsewhere in this way, and the committee spreading such information, and encouraging others to do likewise.

The cost of living is much about the same as at Niagara Falls. Bread, in fact, I found to be the same pretty well everywhere in the States, viz., 5 cents per lb. In some places it was a little less. House rents vary but little, the average rent of workmen's houses in Cleveland is about 14s. per week, but a great many mechanics own their own houses, the percentage there being about 10 per cent. Clothing is dear, and for good suits of clothes made to measure the price is, I should say, not much less than double what would be paid in Great Britain. This may be applied to all the cities visited west of Cleveland.

Chicago was the next stopping place, and the Armour School of Technology first engaged attention. This school is part of an immense institute, which has been added to from time to time, till now there are many activities of a social and educational character. In the School of Technology, which is devoted to engineering in all its branches, there are 1,000 students, and these all pay fees ranging from 90 to 120 dollars per year from the day students, to 10 dollars per term of 10 weeks from the evening students. Notwithstanding fees, the place is not self supporting, and is assisted by the Armour firm to the extent of £16,000 yearly. The engineering classes are fairly well equipped, and I was told that they are very successful in training men for the office work or superintendence of engineering enterprises. The Institute does not, however, contribute much to the education of workmen, excepting to help the more aspiring out of the ranks, and I was told that this had resulted in quite a number of cases of workmen who had attended.

I also visited while in Chicago another technical school in a poorer district. This is run entirely free as regards technical instruction, but it combines a social club element, for which charge is made. I was not favourably impressed with it, and it seemed to me that all the instruction given there could be given far better in the workshop.

I went through two of the workshops of the Allis Chambers Co., at Chicago. This is a combination of firms which own half-a-dozen workshops at Chicago and Milwaukee, employing some 10,000 to 12,000 men on large engineering work, such as stationary engines, mine hauling and crushing plant generally, and is one of the largest engineering combinations in the States. I found their shops at Chicago full of work, some of it for South Africa, and to English specifications. The hours of labour at one place were 55, and at another 54 per week, and the basis rate of wages for mechanics was about 29 cents per hour. Those in charge of large

machines got up to 37 cents per hour. I found at Chicago some indication of an apprenticeship system. The lads serve four years, starting at about 16 and finishing at 20 years of age. They get about two and a half or three dollars per week in the first year, and about double that in the last.

At one of the shops the works manager is introducing what he calls piecework, but which is practically a bonus scheme, inasmuch as the men are guaranteed their weekly wages. He had a deal to say about the advantage of piecework, providing there was something like fixity of prices, and of the benefit to the employer by the increased output, as well as to the men in increased wage. He was determined, he said, that prices should not be cut unless justified by improved machinery or tools procured by the management. In all of which I wished him, and still wish him, good luck, with, I hope, not an unduly mistrustful mind.

Overtime is generally paid for in Chicago at a 50 per cent increased rate, but there is nothing additional paid for nightshifts.

I also visited the shops of the Chicago and North-Western Railway Co. here, and found them much like our own railway shops in this country, except that they were a good deal more roomy. This company, I am glad to say, takes special pride in retaining old servants, of whom there are quite a number well on in years. The rate of pay here is slightly less than elsewhere in the districts—again following the lead of our own railway companies—the pay of mechanics being about 27 cents and the range up to about 32 per hour. All the best work is done on time, but the small parts, especially brass work, are done on piecework, and mostly by specialists rating from 20 cents upwards. I saw here, as I had seen elsewhere, some interesting little devices for turning out work, which I purpose to lay before the members of the Amalgamated Society of Engineers, through the Society's Monthly Magazine, as they would not be of interest here in a report of general character.

Cost of living in Chicago is about the same as Cleveland, excepting that car fares become a somewhat serious item owing to the great area covered within the city boundaries. Car fares throughout America are five cents (2½d.) for any distance in city limits. Chicago has a very good, although very ugly, means of transit, and the result is the spreading out of the place, and probably the keeping down of rents to a point smaller than would otherwise be the case. Coal is 30s. per ton.

As to saving, I cannot speak with any degree of exactitude, but the number of those who save is certainly less than in smaller cities.

MILWAUKEE.—The next place visited was Milwaukee and West Allis, which is a suburb of the same place. Allis-Chambers have workshops at each, and I visited both. At Milwaukee some 3,200 workpeople are employed, and it was here that the engines were built which were sent to Glasgow some years ago, and the sending of which caused such a controversy at the time. At West Allis provision is being made for the employment of a much larger number of men. The shops there are as yet incomplete, but the plan is the most elaborate and on the largest scale I have seen anywhere. Let me give an illustration which will be appreciated even by the uninitiated. In the heavy machine shop there is a planed floor plate about 240 feet by 60 feet in superficial area, and upon which either the work to be operated upon or the operating machine tools are bolted down as found convenient. Upon this, while I was there, work was being fed through between milling heads, each weighing many tons, and at the same time other operations were going on, each of the operating tools being supplied with a separate motor.

I found a great many special tools at Milwaukee invented by the works superintendent, a gem of a man who had been trained at the works

The apprenticeship at Milwaukee is for four years, and the conditions are similar to those at Chicago. The pay of the journeymen, however, is somewhat less, being from 2½ to 2¾ dollars per day of nine hours, those on the larger tools, however, being paid up to 35 cents per hour. There is no piecework at either of the shops at Milwaukee or West Allis.

Cincinnati.—The next place was Cincinnati. I went through two foundries and two engineering workshops there, one of each being connected with combinations having shops elsewhere. Time work was the rule in three of them. I found the wages lower here, 26 cents being the standard, and in one shop the base rate was 23 cents only, and upwards, and few got more than 25 or 26. I found here the first case of the bonus system in operation, and it was only in process of being inaugurated. The manager, who was a German, told me that it was being introduced into work of a repetition character, and was not at all suitable for assembling, or similar work. So far as it had gone, he said, it had given satisfaction, and the men were earning on a "half-and-half" system all the way from 10 to nearly 90 per cent bonus, and he assured me that the 90 per cent men were quite safe on the time basis, which would not be altered. The men were paid half of the time saved from the time allowed to do any particular piece of work.

I found Cincinnati to be a low paid place generally, labouring men there only getting from 1¼ dollars per day, whereas I found elsewhere that the basis rate for labourers had been nearly 1½ dollars. Cost of living is, however, less, bread being cheaper than elsewhere, and rent also somewhat lower. The hours of labour throughout in the machine shops are 57 per week, with overtime rates loosely arranged, and, I am afraid, not in all cases paid.

Hamilton was the next place visited, and the Cincinnati conditions generally rule there. Here are the shops of perhaps the second best-known tool makers of the States, where, by-the-bye, the heavy equipment for Milwaukee had been produced, and I was much disappointed with them. They are old and congested. The working hours are 58½ per week, excepting for three months in the summer time, when they are 55½. There is a double shift, the night men working 13 hours with but one break, and only getting the same rate of wages per hour as the day men. It is, and always has been, a piecework shop, but the men are rated separately on a day basis minimum, the rate being about 25 cents per hour, though heavy machine tool men get a good deal more. The earnings of the mechanics range from three dollars, heavy tool men earning nearly four dollars per day.

I made inquiry in regard to other places at Hamilton, and found conditions of labour more irksome. The hours are generally 59 or 60 per week. Some of the operatives there travel out and in to Cincinnati every day, this double journey taking 28 cents daily from their pockets, and 2¼ hours from their time. Needless to say, with the ten hours of work, and many of them on piecework, together with this long journey, it seemed to me that the labour conditions there involved heavy strain on the workpeople.

Pittsburg was the next stopping place, and as it was reached on the morning of Thanksgiving Day, one of the few general holidays in the United States, there was nothing for it that day but to defer workshop inspection, and utilise time in viewing the town. And a very uninviting sort of a town it appeared to be. Pittsburg has been compared, I believe, to "hell with the lid off," and as I viewed it that day from Washington Heights, an eminence just outside, it seemed to me to fairly well fit that description. It lies on low ground, on the inside angle or delta formed by the junction of two rivers, along whose banks there are smoky and sulphurous mills and furnaces, and between which the higgledy-piggledy buildings of the town are spread.

Fortunately for its residents it has, as all American towns have, a fast tramway service, so that, provided one is prepared to stand or hang on to the footboard of a tram-car, it is fairly easy to get out of it. American cars, by-the-bye, are only full when all the standing space is occupied, and there are two or three hanging on somehow behind the footrail. They have rarely or never seats outside on the top.

The general base rate of wages in the Pittsburg district for engineers I found to be about 28 cents per hour, but many get a good deal more, and on the whole there is a good chance of earning high wages. The hours of labour are nine per day. The first place visited here was the famous shops of the Westinghouse people, situated at East Pittsburg, some twelve miles out. I had not time to go to the heavy engine works of the same firm which are adjacent, but I understand they are well laid out and stocked, and I should say, judging from what I heard, that they are probably similar to the West Allis shops, of the Allis-Chambers Company. The main feature, however, is the electrical engineering plant, the overflow of which we have now at Manchester. There is a main building about 1,000 by 300 feet, flanked with galleries on either side for light work, and traversed by fast-going electric cranes. The bottom floor space is kept for heavy machines, and space for the erection of generators, one of which was on hand while I was there, measuring 32 feet inside diameter. Everything is in apple-pie order, and, from the point of view of present production, I should say that the works are as near perfection as possible. From the point of view of cleanliness and general provision for the needs of the workpeople they are also very good.

The rate for mechanics here is 28 cents, but ranging up to nearly 40 cents per hour. Into the lower end of this range, however, and in some cases above it, there are a very large number of specialists rated at about from 20 cents. Most of the smaller work and some of the large is done under a system of bonus, which has been in operation for some three or four years, and under which the workers receive half the time saved from the time basis fixed for each job.

There are quite a number of women employed on the lighter operations, and the most skilled of these earn, with bonus, I was told, 8 or 9 dollars per week. The workpeople throughout on bonus earn about time and a third on their rating, and, on the whole, the system seemed to work well, and give satisfaction. The management seems to be well disposed to, and on good terms with, the workpeople, of whom there are, if my memory serves me right, about 5,000 to 6,000.

There is quite a novel system of apprenticeship here. There are two grades of apprenticeships; one consists of youths from college, who are bound for two years, and who are paid 15 cents per hour in the first, and 18 cents per hour in the second year. Those who have not been to college are engaged for three and four years, but at a smaller rate of remuneration. The idea seems to be to train the first-named for positions of direction, and the others as mechanics. There are some tests for admission, but I had no opportunity of making myself acquainted with their character. It struck me, however, that the minute specialisation carried out here, and to some extent elsewhere in America, would seem to predicate less mechanics in the future, and more regimentation of specialist labour.

Homestead next engaged attention, and it turned out to be a gruesome sort of a place. Doubtless it will be dealt with more fully by Mr. Cox or other of my colleagues who had visited the place, and whom it more nearly concerns, so that I need not dwell upon it. I mention the place because I want to say that I saw here some really wonderful machinery for feeding and extracting heats from the furnaces and the rolling mills.

The necessity of men approaching the heat of the furnace has been entirely obviated, as the whole manipulation of the molten steel and the ingots is done by electric cranes, taking a hold at least 20 feet from the manipulator. Another feature of the place is the extraordinarily few number of men employed, relatively to the amount of material handled.

The cost of living in Pittsburg is about up to the American standard as mentioned elsewhere. Coal is, of course, a little cheaper, being near the coalfields. Natural gas is a good deal used in dwelling-houses as well as in workshops, being piped all the way from Virginia. Rent is about 14s. per week for four or five rooms, and clothing nearly double the English price.

Altoona came next. This is the Crewe of America. It is the great producing centre of the Pennsylvania lines of railway, and is in many respects a pleasant place. There are two workshops, one at Altoona and the other at Juniata, an adjacent township, and through the kindness of the master mechanics I was enabled to see both places. I was glad to see here a more or less close connection between the workshop and the schools, as the management encourage parents to take advantage of the high schools by giving preference to those holding certificates, on application being made for positions as apprentices or otherwise. I was also glad to note the cordial relationship between the management and the men, and the many proofs of regard for the social life of the town.

The whole of the shops are run on a piecework plan as far as possible, and it seemed to me that the prices are cut pretty fine. The rate of pay for pieceworkers, mechanics, is 25 cents, and for day workers about 28 to 30 cents per hour, and the place is now running 55 hours for a normal week's work. On going through the works I found many special machines, of which more anon, made to suit the class of work, and the shops are well equipped with every convenience. An instance may be given:—There are pneumatic lifts, and the pneumatic pressure is made to answer, not only for drilling and tapping of holes, placing and riveting of boiler stays, grinding in of valves, and reamering of holes, but there is a nozzle laid on to every vice and every machine, simply to blow the dust away from a job while operations are in progress upon it.

The cost of living here is somewhat less than elsewhere. An extraordinary number of men own their own dwellings, and amongst mechanics, I was told, it was quite an exception for a man to pay rent to a landlord.

Washington.—At Washington I was engaged in inquiries of a general character, which will be dealt with later. I saw some engineering shops there, however, and I found that the basis rate of wages was 28 cents per hour, and the working time nine hours per day.

Philadelphia.—I next spent three days in the Quaker city, and visited four workshops in the vicinity. I found that the shops there of a certain firm, of the importations of which we have heard much in this country, are running on most unsatisfactory conditions. A contract gang system of piecework obtains, under which a man contracts for certain work which is done under his superintendence by a gang of youths and specialists at day-work rate of wages, supplemented by a dollar or two a week at his good pleasure. Double shifts are wrought, the day men working 10 hours, and the night men 13 hours, all on the same rate of pay. I found it almost impossible to fix any basis rate, as the mechanics are so few proportionately to the whole of the men employed. It is about 25 cents per hour for mechanics, and 18 for the far more numerous class of specialists. The equipment is old, and the methods of work old-fashioned; there is no

proper attention to sanitation or cleanliness, and in so far as production is cheap it is because of shoddy work and sweated labour. I visited two machine-tool shops at Philadelphia, both belonging to combines. I found both full of work; the hours are 56¼ per week, and the wages from 25 cents per hour for mechanics. Night shifts are general throughout the town, and no extra rate is paid. Piecework and bonus is also a good deal in vogue.

The cost of living is a little less than the average American large city, rent being somewhat less, and coal also cheaper. I found here, however, that a large proportion of the men own their dwelling-houses; in fact, Philadelphia has been called the home of the building societies. The proportion is not so large as at Altoona, but it is a large one.

New York was reached on the 7th December, and on the three following days, in conjunction with those of my colleagues who had remained, and whom I had then rejoined, I attended meetings of the Civic Federation, of which more anon. On the evening of the 9th the Cooper Institute was visited. This is a place which was founded for the increasing of scientific knowledge among workpeople, and is, according to its means, well carrying out that idea. The tuition is free, and is for the most part in the evening, so that it is attended by youngsters from a radius of some 20 to 30 miles, who are engaged during the day earning their own living. There are 2,400 students, and the place has an income now, the original endowment having been supplemented by voluntary subscription of 90,000 dollars per year. It is a very fine place, and is doing a very fine work, hindered somewhat by inadequate support. I was told that the applications for admission were far more numerous than there was room for, hence much waiting and irritation. It is situated right in the heart of New York.

I went through four workshops in New York and Brooklyn. The rate of wages prevailing in the district I found to be from 28 cents per hour for mechanics; of course many get higher. I found turners and planers on large machines at Brooklyn getting as much as 37 cents per hour, and such is quite an ordinary rate for patternmakers. The ordinary week is one of 54 hours.

In two of the four shops visited, time work obtained entirely. In one there was a system of premium bonus in partial operation, having been to some extent dispensed with, and in the fourth, piecework was fairly general. In the premium bonus shop, one of the International Pump Co., the men earned from 12 to 20 per cent over their day-work rates, which were about the same as in day-work shops, namely, from 28 cents per hour upwards. In the piecework shop, that of Messrs. Hoe's, which, by-the-bye, was one of the best I had seen from the point of view of light, sanitation, and cleanliness, and certainly the best in that district, I found the percentage of earnings over rate somewhat larger.

Messrs. Hoe have a system of apprenticeship which is worthy of special mention. The lads are started at about 16 years of age, with two and a half dollars per week, which is increased to three dollars at the end of six months, and so on till it reaches seven dollars in the last year of apprenticeship, and they are given good all-round training in the workshop, and a school is maintained for evening instruction. If at any time during the apprenticeship a lad prefers to remain at one machine, that is, to specialise himself, he is paid an additional dollar per week during the remainder of his apprenticeship.

The cost of living in New York is slightly higher than the generality of American cities. House rent is higher, and for common wooden houses of six rooms, 15s. per week is paid. Of course the cost of transit, owing to the distance travelled, comes in as a more serious item than elsewhere. I think but comparatively few workmen own their dwelling-houses in New York.

Boston.—From New York I travelled to Boston, and making that city a centre, afterwards went to Providence and Worcester. The Massachusetts Institute of Technology first engaged attention, and I was fortunate in that Dr. Waldo, a former teacher, and now a consulting engineer of New York, was good enough to travel with me and introduce me to the chiefs there. This Institute is doing perhaps the best that is being done in the States, in the way of higher class education in the sciences as applied to industry. It has 1,600 students, drawn from a very wide area, and 10 to 15 per cent of them come either through scholarships from the lower schools or from the workshops; those in the latter class having to earn sufficient in the four months recess to maintain them during session. Notwithstanding that it is heavily endowed, the remainder pay 200 dollars per year. A special feature of the mechanical engineering section is systematic instruction in what is called "Mechanics' Arts," which is really the use of the tools in pattern-making, forging, chipping, filing, and machine tool work. To each of these, during the course, a number of hours are devoted according to its considered importance.

I next went to the "Public High School of Mechanical Arts," which is a "high" or continuation school, corresponding to that already mentioned as having been visited at Cleveland, excepting that instead of the ordinary curriculum of the primary schools in the higher stages, it is devoted to teaching the manipulation of tools, just as in the Mechanics' Art Department of the Institute of Technology, only that here nothing else is done. This school is one of a class generally called "Manual Schools," and which are provided as an alternative to ordinary high schools, parents having the option of sending their children either to one or the other. They are entirely free, and if that which I saw is typical, are splendidly equipped for wood and metal working, the machinery being better than that found in the average engineering business. The pupils are taught by competent mechanics. But I was not favourably impressed with the place. It seems to me there was here a waste of money and an engagement of the student's time, which would be far more profitably employed, either in getting well grounded in general principles in the ordinary high schools, or, if mechanically inclined only, in the workshop as an apprentice. The average age of the student on leaving the "Manual" is 18 years, at which time, I should imagine, he will be a sort of Jack of all trades and master of none.

I inspected here, or rather at Cambridge, which is close to Boston, another of the factories of the International Pump Combine. There are 1,700 men employed, the hours of labour being 55 per week, and the pay for mechanics being from 25 cents per hour. The premium bonus plan is in operation, the man taking half the time saved, as I had found before in other places. It had been in operation, I was told, a little over a year, and the men earn about a dollar per day extra, in addition to their wages rates.

Providence came next, and the shops of Brown, Sharpe, and Co. were visited. These are the best-known tool makers of America, the founder of the firm having some 30 years ago invented a universal milling machine, which has since become universal in a double sense in that it is not only universal in its range of work, but has found its way into the markets throughout the world. The firm now employs 2,200 workpeople, and from the point of view of light, cleanliness, sanitation, and general regard for the comfort of the men while at work, the shops are, I believe, the best in the States. The working week, however, is a long one, namely, 59 hours, and the wage rate is somewhat low, such conditions being, in fact, general throughout the New England workshops. The base rate might be fixed at about 23 cents, and the range up to about 30. Piecework is general throughout, and the men earn, I was told, about 20 per cent over their rating, there being a large number of men specially trained at the works. There is a very fine system of apprenticeship. The boys are started at 6 cents per hour, in the second year they get 8 cents, in the third year 10, and in the last 14, but they are

on piecework throughout, so that their average earnings work out at one dollar per day. The special feature about it is that there is a sort of general protector to the lads, who fulfils towards them something like the same function as the check-weighman towards the miners in this country. His work is simply to look after the lads' interests, see that they get variety of work, and are removed from one branch to another at proper times, and to generally encourage and stimulate them, both to their own interests and that of the firm, who pays him.

Worcester was the last place visited in the States. I found the rate of wages and the hours of labour just the same as at Providence, viz., $14 for 59 hours, working week. Piecework is fairly general, and the earnings exceed the amount stated by about $3. The piecework conditions at Worcester, however, are less conducive to peace and goodwill than at Providence, inasmuch as the gang system is in operation.

I have only to say further, in concluding this *résumé* of my calls, that in New England the cost of living seems to be somewhat less than elsewhere. On the other hand, wages are proportionately lower.

As to saving or house owning, I had really no opportunity of making close inquiry, but it seemed pretty clear that the standard of living for operatives generally was on a lower plane than in the western cities or at New York. In this connection it may be as well to bear in mind that the New England are the oldest industrial cities.

Government Conditions and Regulations.—There are two points left untouched, viz., the conditions of employment in Government service, and the Patent Laws. As before stated, I went through the Government shops at Washington and Brooklyn. At both places the shops are well equipped, sanitarily and otherwise, being clean, roomy, and well ventilated. The mechanics' rate is from 33 to 40 cents per hour, the working day being eight hours, and fifteen holidays are allowed and paid for each year, in addition to the national holidays. There is a double shift at Washington, one lot of men starting at seven in the morning, and the other at 3-30 in the afternoon. An apprenticeship system is in vogue, the proportion of apprentices to men being 12 per cent, and the starting rate of pay for the apprentices being 56 cents per day.

In the American naval service there is a class of operative engineers, corresponding to the class of artificers in the British Navy, and recruited from the ranks of the machinists in the same way. They enter as second-class machinists at 40 dollars per month, and then pass, after a year, or less if competent, into first-class machinists, at 55 dollars per month. In another year, or less, they pass into chief machinists at 70 dollars per month, about to be increased to 75, and after another year, or less, into warrant machinists, at 108 dollars per month, rising to 150 dollars.

From the date of entry, therefore, there are opportunities always open for examination in the higher ranks, so that the second-class machinists can pass, as soon as competent, through all the above stages, into the position of warrant machinist; and I was told that there was a prospect of the latter being admitted, if competent, to executive office rank. The terms of service are for four years, but continuous service for 30 years entitles to a pension of three-quarter pay. I may add that my chief informant was the warrant machinist in charge of the ship inspected, and—anti-climax—a native of Rochdale, Lancashire!

Patents.—The Patent Office at Washington dealt with 52,000 applications in 1901, and of that number 35,000 matured into patents. Each applicant pays 15 dollars on application, and a further 20 dollars when the patent is granted. In 98 to 99 per cent of cases dealt with these are the total of Government fees. In 1 or 2 per cent of cases, when it becomes necessary to adjudicate

whether or not applications infringe upon prior patents or claims, courts are provided in the Patent Office, and consist of experts in the various branches, assisted by the Commissioner of Patents. The cost averages another 20 dollars in these cases, and, of course, applicants can go through on appeal to the ordinary courts, but have little chance of success, inasmuch as the Patent Office Commissioners and judges are bound by law to be trained men, both legally and scientifically. The total income from fees just balances the total expenditure on maintenance of the office, so that no income is derived by the Government from inventors. There is a complete register kept at the office of existing patents of all countries within the Patent Union, and no patent is granted which is found to infringe upon any previous patent. The fact of an American patent being granted is, therefore, in itself reasonable proof of novelty. The patent is granted for 17 years, and then lapses, there being practically no renewal, and once granted it remains undisturbed, irrespective of whether or not use is made of it.

It is customary, however, for applicants to proceed through agents; and I was told, both at the Patent Office and elsewhere, by those who had gone through more than once, that it was wise to do so, inasmuch as these agents know best how to make out claims in a comprehensive manner. The average charge of an agent is from 30 to 40 dollars, so that the total cost of obtaining a patent for 17 years averages about 80 dollars. There is no Government charge for search, and no disturbance within the time for which the patent has been granted. In these respects the patentee has absolute Government protection, and hence enjoys an immense advantage over the holder of a patent in this country.

From the last report of the Controller-General of Patents, issued from His Majesty's Stationery Office, I find that the number of applications for British patents for the year under review was 23,924, and of that number only 12,785 matured into patents remaining in force for four years. I also find that in 1901 the fees of applicants amounted to £224,125. 12s., and the cost of running the Patent Office, including pensions to old servants, amounted only to £102,543. 7s. 7d.

Here the applicant pays £4 for registering and protection for four years, after that other £95 altogether in Government fees during the 14 years' lifetime of the patent. The instalments of this sum range from £5 in the fifth year to £14 in the fourteenth, and failure to pay at any time involves lapse of patent. No search is made by the Government authorities, and therefore no reasonable guarantee of novelty is given. The British authorities would seem to have determined to discourage and fine inventiveness instead of encouraging and rewarding it. In fact, they seem to regard inventors much in the same way as they would holders of large incomes, to be bled instead of assisted. The fallacy of this official attitude finds refutation in the official document already quoted, from which I find that of the number of patents granted in 1888, only 5·2 per cent survived the thirteenth year. The others lapsed owing to inability to pay or invalidity of patent. Thus are British inventors mulcted in heavy sums by the Government in addition to payments to agents for search and other services, and when patents have been granted as the result of much time and money, they are often found to be useless.

In conclusion, just let me say further, before proceeding to deal with the questions, that I do not take a pessimistic view of British engineering industry, providing it is given a fair chance. It is true that American exports of engines and machinery have increased enormously during the last few years, but it is also true that the exports of similar British engineering products have also increased, and that we still export nearly double the value of the American exports in a given time. The figures taken together simply show that the world's

demand has increased, and that, not unnaturally, that demand has largely gone to those countries still in the first flush and bound of industrial expansion. But qualitative considerations will assert themselves, and from the point of view of quality I feel quite sure that British goods have nothing to fear, providing that British designers are encouraged. Moreover, it is reasonable to expect that Americans will continue to an increasing extent to develop a desire for leisure in which to enjoy some of the pleasures and amenities of life, and to attend to communal needs in regard to which they are far behind us. As I state, in answer to the question bearing on the point, the hours of labour have been reduced by three per normal week during the last three years, and I believe that the time is ripe for a further reduction. Even employers told me that they were quite willing to adopt shorter hours, and all that was needed was a common agreement.

Americans have, of course, natural and other advantages over us. They have great resources of raw material and a protected home market for manufactures. But, on the other hand, we have social advantages over Americans in the form of good roads, trained hands, and all the accumulated accessories of civilisation which are relatively lacking in newer communities.

Is there anything in American practice which we might copy with advantage? I believe there is. I believe that, while retaining our own superior characteristics of thoroughness, and while continuing to have regard for certain standards of life and conduct, we might, nevertheless, follow the lead of the Americans in encouraging inventiveness and initiative, in fully utilising machinery; and, perhaps, in organising industry on a larger, and therefore cheaper, scale. If these things be done I have no fear but that British engineering will hold its own, without sacrifice of national or individual pride in good work, or of the general welfare of the worker.

Answers to Questions, by Mr. G. N. BARNES.

Having now more or less exhaustively covered the ground in a general way, I will venture to offer a few general observations, or expressions of opinion, in regard to the questions submitted to the Delegates. It must be understood, however, that these are given with due reserve, because, although I endeavoured to make the best use of my time, I yet feel that after all I covered but a small part of the vast area, and saw but a fraction of the varied life of the United States.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. The American system of education, so far as regards the public provision of continuation schools, is infinitely better than that in vogue here. The primary schools are much the same as our Board schools, and are available up to the same age, namely, 14. But the continuation schools are much superior, and there is, in fact, nothing in this country corresponding with them. In so far, therefore, as parents have taken advantage of these schools in America, I think the lads there have an immense advantage over the English lads. In regard to apprenticeship training the English lads have an advantage, as our apprenticeship system, with all its shortcomings, is the best. The cases I have mentioned of Brown and Sharpe's, Hoe's, and one or two others are quite exceptional. Of mechanics in America it may be said that,

Questions.

2. If yes, what changes would you suggest in the English system of education for the working classes?

3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?

5. Does the American workman do more or less in an hour, on average, than the English workman?

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?

7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?

Answers.

like Topsy, they "growed," but just how or where seems to be a matter of little concern to the average American.

2. I suggest that the best thing for the improvement of our educational system would be the provision of free continuation schools, both day and evening, for lads of over 14 years of age. These schools I would suggest should not be exclusively, or even mainly, technical, but mainly continuation schools, which should carry the ordinary education on to more advanced stages than that of the Board school, and which should have as their special object the development of the reasoning faculties. I believe that the great want in our educational system is not technical schools, but a higher education generally, which would enable lads to avail themselves more easily of the technical schools existing, and enable them to better appreciate broad principles, as applied not only to industry but to affairs generally. The lads at present are dropped by the educational authorities just at the most important time in their lives. They leave school at 14 years of age, and then, after a year or two, if they begin technical studies at the evening schools, they are handicapped by a want of general knowledge.

3. I have but little faith in evening schools, technical or otherwise, for men at work during the day. "Catch 'em while they're young" is a good principle in education when rightly applied. The great want is preparatory schools, and then technical schools, for young men, and I believe that if we had the first there would be a much greater demand for, and a greater field for usefulness in, the second, and perhaps then, to a greater extent than now, technical schools would be of service for men up to over age. But at present our public provision of technical schools is better than that of America, and there are more of them, while on the other hand American private initiative has done more for technical instruction.

4. The hours of work in America average about 56 per normal week, having been reduced from about 59 during the last three years. The average in Great Britain is about 52 per week.

5. I should say that more work per hour is turned out, but it should be remembered in this connection that there is a qualitative as well as a quantitative efficiency. The point comes in for later treatment.

6. Piecework is not much more in vogue than in Great Britain.

7. It is not found to be of permanent and mutual advantage unless safeguarded by provisions against cutting of prices.

Questions.

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

Answers.

8. Employers anywhere will cut down prices. Cutting, however, is not so much resorted to in the States as here, because there is more general recognition, both on the part of the employers and employed, of the value of increased output to both sides. I believe that, dismissing gain for the moment, most people start well, and may mean well in introducing piecework, but they under-estimate the difficulties. Undue cutting of prices becomes inevitable under the stress of competition as piecework becomes general, and the only way to prevent it is through combination of employers—or an understanding between employers as to prices of goods—as well as a strong combination of workers, and an agreement between the two bodies. These conditions do not exist in America.

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

9. Premium and bonus systems are not much more in vogue in America that here. They are in the experimental stage both in America and in Great Britain, and I think that on the whole they have worked fairly well both for employer and employed. The employé under the bonus system is sure of his wages, and if cutting takes place to an undue extent, he can simply cease bothering his head about bonus. But under the bonus system there is less temptation to the employer to cut down, since he only takes part of the advantage, if any, arising therefrom.

10. Where weekly wages are paid—
(*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
(*b*) On this system do personal energy and initiative meet with a due reward?

10. In regard to (*a*), there is but little difference between American and British workmen, so far as I could see, except that American workmen are more favourably disposed towards machinery. Indeed, here lies the distinctive feature of American industry, viz., the hankering after the latest machinery and best methods of working, which pervade American industrialism. Americans, both employer and employed, have realised more fully than has been realised here that brains rather than brawn count in most things; that mental rather than manual hustle is of primary importance. In answer to (*b*), I should say there is a greater readiness on the part of American employers to give increased wages for personal energy and initiative.

11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

11. I answer in the affirmative, excepting that I should qualify by expressing a doubt as to the readiness of the American employer to increase wages proportionately with output.

12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?

12. I believe that labour-saving machines and up-to-date appliances are welcomed by the men in America.

13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?

13. I believe that improvements made by employés are welcomed, and to some extent rewarded by employers.

Questions.

14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?

Answers.

14. There is but little difference in this respect as between America and Great Britain. Both there and here there are certain automatic machines, of which two or three, or even more, can be and are attended by one man, and in some American piecework shops a group of men and boys will have access to perhaps double as many machines, and sometimes more. In these cases the machines are not running all the time. In Canada I saw two men working together on piecework and attending to three machines between them, and in the New York piecework shop I saw cases of men attending to two machines each, but all these are merely exceptions. As a rule, the machines upon which work of any considerable value is placed, or which are capable of a wide range of work, are each attended by a man, and in the case of heavy lathes and planers the operator has a helper with him all the time. Of course I know that the contrary has been asserted by jaundiced journalists "on tour," who have repeatedly stated that American workmen operate two or three machines each, and that piecework is general in America. I am glad to have an opportunity of stating, after actual observation and from inquiry, that these assertions are untrue.

15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?

15. To answer this thoroughly, the question must be treated as applying to the two classes of American workmen, namely specialists and mechanics. In regard to the specialist: he gets on the whole less overlooking, because he requires less. He is confined to a ceaseless repetition of small operations, which leave no room for initiative or individuality; in short, he is in a deep and narrow groove, in which he cannot go wrong, and, so far as I had opportunity of forming a judgment, he is just the timid invertebrate that might be expected as the outcome of such conditions. In so far as increase of goods is obtained through "producing" this type of "producer," it is an increase which I think is too dear at the price. I should like, however, to discriminate here between specialist and specialist. In so far as specialisation is brought about by improved machinery, rendering operations more simple or automatic, it is inevitable and legitimate that such operation should pass from skilled to unskilled hands, that is to say, from the hand mechanic to the machine operator or specialist. But there is another form of specialisation, viz., that brought about by simple division and sub-division of processes, and the allocation of parts of each to specialists working under the control of contractors and gang bosses, and called upon to exercise a certain set of muscles in a mechanical way

Questions.

Answers.

day by day. It is to the latter form of specialisation that I object. So far as the mechanic is concerned, there is little or no difference in the matter of overlooking. If any, I should say that there is somewhat more overlooking in America, but I should not say that this was because there was any more need for it, as far as the mechanics' capabilities are concerned.

16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?

16. This is partly answered in the answer to above question, but I think there is but little difference in the matters mentioned as between English and American workmen. As a matter of fact, so far as mechanics are concerned, the "American workman" is to a very large extent the "English workman." I found in many cases British, German, and Scandinavian in positions of authority. Of course, as mentioned elsewhere, there is greater reward for initiative, and therefore I should say there is more of it.

17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?

17. I had no opportunity of comparing overtime with our overtime output, but I have no reason to believe there is any difference in the manner suggested as between the British and Americans.

18. Are the American employers more accessible to their men than English employers?

18. Yes. I believe that American employers or their representatives are more accessible than are the British. I had constant opportunities of seeing this in the shops, and I was particularly struck with the free-and-easy manner of addressing each other—as between workmen on the one hand and managers on the other—even where conditions of labour appeared to be somewhat hard.

19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?

19. Yes. There are greater opportunities for the workmen to rise, and the reason is, I think, mainly because of the expansive nature of American industry, as well as the reasons already adduced as to proper recognition of ability and better educational facilities.

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

20. No. The needs of the workers in the matters mentioned are no better provided for in America than in England; in fact, I should say that, excepting the workshops which have been mentioned as being well found, the American workshops, so far as I could see, are dirtier, more insanitary, and more congested than the ordinary English workshop. But it should be said for the American workshops that they are generally well heated by hot-air blasts or piping in winter time, and cooled by fan or other arrangement in summer. This is a matter almost entirely ignored in this country.

Questions.

21. (*a*) Do you consider American factories better equipped for production than English?

(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?

(*c*) Do the factories turn out better work?

Answers.

21. (*a*) In some respects American workshops are better equipped than English. They are equipped with a greater variety of special tools made for special work of repetition character, and on the other hand there is less range in regard to the size of tools in the workshops, and, therefore, because of that I think greater production. In this connection it should be remembered that America has 80 millions of people, with a high spending capacity, and a country constantly making fresh demands upon her industrial resources, and hence American engineers have been able to do things wholesale; in fact, they have been pressed to do so, and this has led to the adoption of plans for the manipulation of parts in a wholesale way by operating upon a number at a time, and by all sorts of little contrivances for securing uniformity and despatch. (*b*) The American manager is more enterprising and more ready to introduce the latest and best of everything, and he also works hard himself, being often himself the first in the workshop and the last out; but in justice to the English manager it ought to be said that the spirit of enterprise is more general in America, and, as I have previously stated, there is an all-round readiness to accept new ideas, and a general hankering for machinery and appliances, so that the position of the American manager is relatively easier. (*c*) The factories certainly do not turn out better work. Qualitatively the work is inferior to British work. This is marked in industries other than engineering, notably in cutlery and newspapers. It is also true to some extent as applied to the engineering industry, not so far as fitting parts are concerned, these being largely standardised, but in the dispensing with all polish and finish not absolutely necessary, and in skimpiness of material, which is also softer and less durable than that used in Great Britain. In order to have proof on the latter point I procured a sample of metal from the American shop of a firm of engineers having also workshops in this country, and I have had it tested, together with a sample from the British shops of the same firm, both being from the class of metal used for identical purposes in each country. This test is somewhat favourable to America, inasmuch as the firm in question is one of the best in that country, but nevertheless the report shows in favour of British metal. The latter is shown as of a higher tensile capacity under strain. It is also shown on analysis to have more combined carbon and less silicon, and is therefore harder than the American. The report is here given, as follows:—

TENSILE TESTS AND ANALYSES OF TWO SPECIMENS OF CAST IRON.

Received from George N. Barnes, Esq., of the Amalgamated Society of Engineers, on the 9th January, 1903.

Condition Received ... ... Unprepared Bars.
Condition Tested ... ... Prepared.

TENSILE TESTS.

W.S.H. Test No.	Diameter.	Area. Square Inches.	Maximum Stress.		Remarks.
			Pounds per square inch.	Tons per square inch.	
21817	0·626	0·3078	20675	9·23	Square specimen turned round.
21818	0·626	0·3078	24662	11·01	Round specimen turned round.

W. H. STANGER,
6th Feb., 1903.

ANALYSES.

W.S.H. Test No.	21818	21817
	Per cent.	Per cent.
Graphite	2·709	3·093
Combined Carbon	0·483	0·226
Silicon	2·246	2·669
Sulphur	0 123	0·121
Phosphorus	1·311	1·019
Manganese	0·600	0·626
Iron (by difference)	92·523	92·246
	100·000	100·000

STANGER & BLOUNT,
6th Feb., 1903.

The American Metal is numbered 21817, and the British 21818.

Questions.

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

Answers.

22. Greater output is, I believe, almost entirely due to more machinery compared with hand work. To some extent a greater speed is also run because of the softer material, and the use of the best steel for cutting. Longer hours may also contribute somewhat, but not to the extent of the difference between those worked as compared with the number worked in Great Britain.

23. Yes. I would suggest (*a*) a freer use of machinery and latest appliances. (*b*) A more ready recognition and liberal reward on the part of employers of exceptional ability or initiative of the workman. This might be carried out, either through bonus schemes or otherwise, as long as the standard time rate of wages was paid to all, and increased pay for increased effort was secured. (*c*) The standardisation of work where possible. In this respect I find America ahead of us. I might just cite railway stock wheels and axles as an instance. These have been reduced to a standard size and weight, and are supplied to the railway companies and other builders at extraordinarily cheap rates. One firm does an enormous business in wheels which are chilled to a certain depth, but guaranteed to run for so many thousand miles before the chilled part is worn through; and these are supplied to railway companies and builders all over America. (*d*) The re-modelling of the Patent Law, and re-organisation of the Patent Office, so as to secure a simple registration and Government search, and therefore reasonable guarantee of novelty to the inventor, and the reduction of fees charged to him. This is very important, and a matter upon which we cannot too promptly imitate our American cousins, who claim, I believe with a large amount of justification, that the American patents have given employment to enormous numbers of workpeople, and have led to the adoption of labour-saving and productive machinery. (*e*) The provision of secondary or continuation schools.

24. (*a*) I believe that the Americans, speaking generally, and of course not applying it to the poorest classes, eats more, and in more variety, than is good for him, and that the British mechanic with, and to some extent because of, his more simple diet is more physically efficient than the American mechanic. (*b*) The price of food in America, as compared with the price in Great Britain, is higher to the extent of, I should say, 25 to 30 per cent.

25. There is but little difference in the clothing of the American as compared with the British mechanics, excepting that the Americans doff their working clothes, in many cases, before leaving the workshops. So far

Questions.

Answers.

as clothing outside the workshop is concerned, I think the advantage is in favour of the American, from the point of view of cut. I do not want to entrench upon the report of the Tailors' delegate, but I may say that it seemed to me that tailoring was better done in America. The price of slop clothing is, I think, much about the same as here, but the price of good stuff—which is generally imported from England, and bears heavy import duty—well got up, is nearly double the English price.

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

26. I had but little opportunity of judging as to quality of housing, but having been in about a dozen houses, I may say that it appeared to me that the American house is, as a rule, larger than that of English workmen. I I should not say, from the point of view of comfort, however, that it was any better. (*b*) Rent is about 30 to 40 per cent higher, taking the country through on both sides. (*c*) Yes. Far more workmen own houses than here. I should say at least twice as many. I am inclined to attribute this to the habits formed in early days of wooden houses. In the primitive settlements houses would be cheap, and the custom of house-owning would be general, and I rather think that this has become more or less stereotyped. I noted that ownership of houses was most prevalent in small towns, where early ideas are probably more tenaciously clung to, and where the houses are still mostly of wood, and therefore cheap.

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?

27. The base rate of wages in America, as compared with Great Britain, taking not only the rate per normal week, which is higher, but the rate for overtime and night-work which is relatively lower, is, I should say, about 35 to 45 per cent higher for operative engineers, but there is a greater range of pay, and I should say that the maximum wage is probably 70 per cent higher. I am quoting present rates which, in America, have been increased considerably during the last three or four years.

28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

28. The value of the American wage of the operative engineer, compared with that paid in Great Britain to the same, is, I should say, about 15 or 20 per cent higher on the baseline, and proportionately more on the maximum.

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?

29. He can, I believe, to the extent shown above, but as to efficiency I would qualify the answer by saying that such efficiency will probably last for a shorter time than in this country.

30. If yes, does he *in fact* save more, or not?

30. I should say he does.

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?

31. I do not think so.

Questions.

32. Is the American working man more sober?

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

34. Is it true that the American workman is thrown out of work at an early age?

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

Answers.

32. I should say he is. As a matter of fact, the consumption of liquors in the States is only about 55 per cent of that in this country per head of population.

33. I think that probably it is as suggested. I had not sufficient opportunity of getting information upon this point so as to make my opinion of much value. I should say that, although his manual exercise is not much more than that of an Englishman, yet I am inclined to think that the strain, on the whole, is more intense as well as more prolonged Of this, more in answer 35.

34. It is not true, if my observation only were to be taken as the means of forming a judgment. I saw as many old men in the workshops as I should see in the shops of Great Britain; but I think that, owing to the great boom in America, probably all are employed just now who are willing and able to work. Speaking generally, there is but little real cohesion among the men or common feeling, excepting of that rough-and-ready sort already mentioned, as between man and man in America. Most are absorbed in work solely as a means of making money, and I should say that the old men would be turned adrift with but little compunction. At the same time, I am anxious that this may not be indiscriminately applied. I found exceptions, such as the railway shops and others that I have mentioned in favourable terms, and I feel quite sure that in these cases the old servants would be sure of generous treatment.

35. The average age at death of those males who reach the age of 15 years in the United States is 56·4, and the average age at death of males in this country who reach 15 years of age is 58·41. This percentage, it will be observed, gives two years longer life to the Englishman as compared with the American, eliminating all the infantile mortality, and taking only the duration of life of those who begin the struggle of life. The average age at death of the machinists and blacksmiths in the United States is 50¼ years, and the average age at death of the members of the A.S.E. in this country is 52. There is, therefore, a difference of 1¾ years in the average age of the British engineer compared with the American. (*b*) I rather think that shorter living is to some extent due to the unhealthy mode of living, as well as to prolonged daily strain. As before mentioned, I believe the American eats too much, and there is certainly less of a homely and kindly social life than here, and less outdoor healthy recreation or holidays. The time and opportunities at my disposal were too limited for me

Questions.

Answers.

to go fully into this matter, but the fact remains that the American certainly lives a shorter life

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

36. I do not know.

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

37. I should answer this in exactly the same words as above.

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

38. No. I consider the general conditions of living of the American workman in every respect, but that of money and the continuation schools for his children, worse than here in Great Britain.

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

39, 40, 41. I shall take these questions all together. The industrial department of the Civic Federation has been in existence only two years or less, since which time there have been two great industrial disputes in the States. It was scarcely on its legs on the occasion of the steel strike, but when the coal strike broke out it was fairly well organised. It offered its good services in the latter case, but they were refused by the coalowners or operators, but still it claims, and I believe with reason, to have averted some of the dangerous results which might have arisen from that strike, and it exerted, I believe, during the time an inside influence on effective American public life and opinion. Of course, I had full opportunities, so far as three days' attendance at its annual convention could give them, of getting to know the men at the head of it. These are the representatives of American organised labour, of American employers, organised and unorganised, and of the best elements in American public opinion. I saw and conversed with many of them, and had every reason to respect their ability and sincerity. There is just one element which I think may not be a source of strength, namely, the politician. I believe that a Civic Federation anywhere is a good thing if founded on the principle of free public conference and discussion, on the part of men honestly trying to find a way out of industrial and social ills, and provided it does not in any way weaken organisation. Discussion and publicity cannot do any harm, and on the other hand may do a good deal to prevent abuse or waste of power, either on the part of individuals or associations. An organisation of the character suggested in this country might at all events bring in the best elements of public opinion,

Questions. *Answers.*

and thus tend to bringing parties together, and help to breach over that chasm between man and man, which so far has been a condition of modern industry brought about by larger corporations and workshops. In regard to steps being taken to form such an organisation, I have to point out that representative workmen and the trade union movement as a whole in this country have before now declared in favour of the principle. Mr. Ritchie, moreover, submitted a proposal embodying something of the sort some three or four years ago, and it was endorsed by the Parliamentary Committee of the Trades Union Congress, but rejected by the employers as a body on the ground that they were averse to third parties. Labour is, therefore, in a peculiar position. Its attitude is favourable, and known to be so, and it would therefore seem that if steps are to be taken to form such an association the employers should be approached. If some person of authority were to canvass both parties I should favour the proposal, and, with the concurrence of my constituents, would act with the federation if formed.

Geo. N. Barnes

Mosely Industrial Commission.

Report by Mr. D. C. CUMMINGS, of the Iron and Steel Shipbuilders and Boiler Makers' Society.

In giving my report on my own particular trade I must necessarily give prominence to the shipbuilding industry, dealing exclusively with the iron and steel work, and leaving the question of woodwork for Mr. A. Wilkie, who is the representative of the Carpenters, or Shipwrights, to use a term by which they are perhaps more commonly known. Although away from home seven weeks and a half, yet the time taken in arriving at the place of meeting and journeying back left but three weeks for inquiry in the States itself; certainly we could have remained much longer had we wished, but general secretaries are busy men, and the anticipated six weeks from our official duties had been already overdone. It was, therefore, necessary to return home without further delay.

Shipbuilding and Marine Work.—To deal first with the work on the Great Lakes. The type of steamer principally built is what is known as a coarse freighter, broad of beam and flat bottomed, constructed upon lines that make it possible to use templates for the 'midship portion and the decks. Generally speaking, the type of steamer built on the Lakes could not be used for ocean traffic, and is only built for the lake trade, as it is impossible to get vessels into the lakes from the ocean, or from the lakes out to the ocean, that have a draught exceeding 18 feet. Competition in yards on the Atlantic border, or in other countries, is not a serious matter. What competition did exist was between the several yards on the Lakes, but that now is a thing of the past, as the American Shipbuilding Company, under the presidency of Mr. W. L. Brown and the general management of Mr. J. C. Wallace, now own the eight largest shipbuilding yards on the Lakes, and may be said to almost monopolise the shipbuilding of the Great Lakes. The marine boiler shops in connection with this company can be dismissed without much comment, for instead of their possessing anything of a novel or startling character in respect to new machinery the contrary was the case. Mr. Wallace, senr., the founder of the company, apologised for them not being so up to date as are many of the works he visited in Great Britain two years ago. One thing is worthy of remark, and that is that punching is still largely resorted to, the holes being broached out afterwards to the size required. Mr. Wallace also frankly stated that they could not in shipbuilding successfully compete with Great Britain under British conditions and methods of work, a remark that was re-echoed by every shipbuilding superintendent that we conversed with.

The shipyard method in Great Britain is what is known as the squad system. In the States the individual system prevails, and at Lorraine (the largest and most up-to-date yard on the Lakes) we were informed that it was impossible to work platers, or fitters, as they are called, in squads, because a strike would at once take place if the chief squads earned by piecework more money than those doing other and perhaps simpler work.

Piecework is not so extensive as is customary in England. Hand riveters being more accustomed to work piecework than the platers, a comparison of the platers' prices is useless because of the individual work, and while some portions, viz., marking off, may at times be

worked on piece, the other, that is punching, may be done timework, or *vice versa;* setting the plates and putting them in place being also sub-divided in the same manner. Hand riveting is worked on the forward and aft sections by piecework squads similar to our own, shell rivets being paid for at the following prices: ¾in. rivets, 12s. 6d. per 100; ⅞in. rivets, 14s. 7d. per 100. These prices are far higher than our own, especially when we take into consideration that staging of a very complete character is erected and work made absolutely close and ready for riveting. Pneumatic tools are more extensively used than with us at home, and are in the Lake shipyards worked by Germans, Hungarians, Poles, and Slavs, many unable to speak English, the reason of their employment being that it is impossible to induce the American workmen to use these tools, and what Britishers they can get are urgently wanted for plating and riveting. We were informed that these tools did not lessen the cost of riveting, but were brought into use by absolute necessity, viz., want of men; added to this was the fact that the severe frost of the winter interfered with the hydraulic and other tools.

Overhead cranes are extensively used over the building berths in various ways, staging being very elaborate and also very necessary on account of the air-driven tools. Conditions of employment in the Lake shipyards are:—

Platers and smiths, timework, 12s. 6d.; piecework, 21s. to 25s. Hand riveters, timework, 12s. 6d.; piecework, about 21s. Pneumatic riveters, composed of the aforesaid foreigners, receive $2·75, or about 11s. 6d. per day timework, and when on piecework earn about 14s. 6d. to 15s. per day. Men punching plates, &c., receive about 11s. per day on time rate for a full day's work. Hours of work are 55 in summer and 60 in winter, but more than one superintendent expressed opinions favouring a State regulation of a 54 hours working week.

Very few pure-bred Americans are to be found in the Lake shipyards, less than one dozen being employed in Lorraine, the yard which has put into the water these last two years more tonnage than any other yard in the States, the reason given being that the fairly well-educated American workman does not care for the dirty, laborious work of the shipyard. The most responsible workmen are Britishers, the others being a mixed conglomeration of foreigners, whom the principals and superintendents of the Lake yards admit are in the long run much more expensive than our British labour. Present prices for material are £8. 5s. for plates, up to £9 for angles and other sections. It is cheaper on the Great Lakes than on any other shipbuilding centre, reaching as much as £11 per ton in some places on the Atlantic border.

At the New York Shipbuilding Company, at Camden, near Philadelphia, ocean-going steamers are certainly being built upon similar principles to those adopted on the Lakes. Elaborate shops, elaborate machinery, elaborate staging, are the order of the day. Templates are almost exclusively used, but although the firm claim to use templates completely, yet such, we found, was not the case. Every practical shipbuilder ridiculed Camden methods, and my own convictions are that they were correct in their criticism; the advantage gained by templating flat sides decks and flat bottoms was lost by the management carrying out the principle to the exclusion of common sense. Lorraine yards turn out a greater tonnage with the employment of three template makers in the loft than the Camden yard can with 50 template makers, and a large array of draughtsmen. The erection of portions of the vessel in wood skeleton in order to make a bored template for each plate accurately, each template only being used for two plates, viz., port and starboard, is evidently so costly a proceeding that it must appeal to the practical man as the carrying out of a good idea to the height of absurdity. The central idea governing the minds of the management seems to be building

ships on the bridge-building principle; in fact, the plant seemed designed with that end in view. The equipment of the works was costly, and the returns under the system adopted may be a sorry speculation for the shareholders. Much we did hear, even inside the works, was not of a too reliable character, for there was more than a disposition to convey the impression that they even did more than was actually the case. We were accompanied by an engineer draughtsman, not a shipbuilder, who, when pressed upon salient points, apologised for that not being his department, and when we sought to ascertain particulars from the men, were politely told that questioning the workmen was against the rules. Altogether the visit was a disappointing one, and the methods at Camden, so much belauded and advertised, are certainly those that no level-headed American or British shipbuilder would dream of adopting.

Cramp's, of Philadelphia, may be said to be typical of the better known methods of shipbuilding. War ships, merchant ships, passenger ships, are built by this enterprising firm. Messrs. Cramp's is a non-unionist establishment, and therefore it cannot be said that any remark I may make in its praise is because of my trade-unionism. Founded in 1830 by William Cramp, it has gone on, from wood construction, developing and developing until it is looked upon as one of the leading shipyards of the world. It is modelled upon British lines, the imitation of our methods being the sincerest form of flattery, and the present Mr. Cramp considered our remark, that his yard resembled our British yards more than any other yard we had seen, as the highest compliment we could pay him. Here again admiration of British shipbuilding was expressed, by Mr. Cramp giving expression to the opinion that our country's position as the leading shipbuilders was unassailable and not likely to be seriously menaced in the next quarter of a century. Pneumatic tools were certainly used here to a larger extent than we use them, but the shipyard manager would not commit himself by saying that they were cheaper than our own methods. "Certainly," said he, "the necessity of pneumatic tools would not have arisen if our men could have tackled successfully the heavy riveting of to-day, as you Britishers tackle it and make a living at the prices paid."

Apart from the pneumatic tools, the machinery was similar, except for a novel method of softening by a blow-pipe arrangement just the part necessary to drill holes in the nickel steel armour—a method of concentrating the heat through a given spot, which the inventor claimed only softened just the part required, viz., the size of the hole wanted. Drop forging for hand-rail stanchions and other small work was in extensive use, but non-union as the yard was they boasted that it always paid to put upon machines the skilled men whose work the machine undertook; in fact, it may be said to be the invariable custom in the States to put skilled men to labour-saving machines, a custom that certainly avoids the friction caused by introducing labour-saving machinery and displacing the men who have hitherto done the work in favour of unskilled men. The boiler shop, like the shipyard, was very British; in fact, the officials and foremen of the shops were extremely anxious to know whether similar machines to theirs were in use in Great Britain, and when any remark was made about a superior machine they were not satisfied until they got sufficient details to enable them to make experiments of a similar character. Altogether they were a go-ahead lot, and inquiries brought out the information that they personally benefited by every improvement they made.

Summing up the shipbuilding and marine boiler making, I may say that I do not consider America seriously menaces our trade, but, on the contrary, that the competition is not so great as I anticipated. The tonnage of the Great Lakes can be dismissed as a local trade in which even the American builders on the Atlantic and Pacific borders cannot seriously compete;

in addition, there is still a large quantity of small and composite vessels built, and when war ships and river craft are deducted, the iron and steel tonnage left for competition is smaller than one anticipated. The only modern method suitable to them which may not be suitable to our British shipyards is pneumatic riveting, but the shipowners in a country like ours will naturally look askance at a method of riveting a ship which, while not making it any more durable, adds enormously to the cost of repairs, one informant stating that it costs as much to cut out pneumatically-riveted work as it did to complete the whole of the repairs on the other system. As to the boiler shops and shipyards our own heavy machinery was certainly superior, and, generally speaking, the work done was not of so good a quality as the work done at home. As for working hard, it was generally admitted that it was impossible for men to work harder than the piecework shipyard worker does in Great Britain.

Locomotive and other Boiler Work.—In the boiler shops of the various classes, locomotive, water-tube, and other boilers, air tools were in general use and invariably used by boiler makers, no matter what class of work was being undertaken. Here and there might be found a machine that I have not personally seen in use in Great Britain, such as a tube-washing machine, but, on the other hand, many good machines in use in Great Britain was not discoverable in the States. The quality of the work was generally of an inferior character. One day, after visiting a good many boiler shops in Chicago, I entered a boiler shop where the Heine water-tube boilers were being constructed ; asked my opinion about the work, I replied that it was the best bit of work I had seen in the States, a remark that the employer said was a great compliment, coming from the lips of a representative of the trade from the old country, where it was well known that the work was of a superior character.

In the great Baldwin locomotive works at Philadelphia, they claim to be at present averaging 36 locomotives per week. The American locomotive is a type very different from our own, although they also vary somewhat in America, the Baldwin being a class distinct from those built at other large works at Schenectady. American locomotive boilers have steadily increased in size, until it is almost impossible to build them larger without having to alter bridges and other overhead structures. Care is not always displayed in this particular, for so large an engine was built just recently at the Schenectady works that the dome top had to be removed before it could pass under some bridges of one of the eastern States. The Baldwin works, with their 8,000 day-shift men, and 4,000 night-shift men, compare unfavourably in many respects to our own locomotive shops. They were fearfully congested, and it was difficult to pick one's way in safety; the method of continually using loaded overhead cranes while underneath numberless men were working, seemed to savour of a disregard of injury to life or limb that our own employers would not, I am convinced, tolerate for a moment. On the other hand, an excellent custom prevailed ; men were encouraged to make improvements, and the incentive to do so lay in the fact that they got the full benefit of the improvement while life lasted and they remained in the firm's employ. No doubt the output of 36 locomotives per week causes a greater rush and congestion than would be the case in normal periods. This firm, although so busy to-day, has known what depression is, for in 1892 and 1893, instead of a night and day shift, the average time made by their men was only equal to four hours per week. Some three or four years ago this firm built some locomotives for our British railways, but one of the principals informed us that they should not attempt to do so again, unless they were allowed to build them in their own way. The requirements wanted by the British railways made the contract a loss to them, and the result is that, while they could build an American locomotive cheaper than our better-finished and better-made British locomotive, it is now admitted that they cannot compete with our British,

locomotive builders in the making of the very much superior-finished British article. The life of an American locomotive is not to be compared with the life of a British one; in fact, American makers candidly admit that they do not aim at long life, and it is not an uncommon thing for new fire-boxes to have to be put in before the locomotive is 12 months old, some having returned for new boxes in nine months. Copper fire-boxes are unknown in the American locomotive, steel being used exclusively, although in the contracts they received from this country and Europe, copper boxes had to be made. Punching is also largely done, holes being broached out to the size required. Finish as we understand it is practically unknown; even in the engine works, or other parts necessary to be machined, only those parts are done that are absolutely necessary, all the rest being left rough and ugly. Summing the whole matter up, American locomotives compared with our own are extremely ugly, and of inferior work and finish, and although it may be argued that they serve their purpose, yet I should be sorry to see such an age of utility in our country that would sacrifice all beauty and finish, believing, as I do, that if anything is worth doing at all it is worth doing well. Boilermakers' time wages average $3½ per day, equal to 13s. 6d. per day, a wage nearly double the time worker's wages in Great Britain.

Structural Iron Work.—Bridge-building and structural iron work is standardised to a great degree, the object being to readily replace parts and also to be able to supply bridges quickly; customers requiring quick dispatch have to be content with the architecture of the builders. The method adopted cheapens the cost of construction, but the structures certainly have the appearance of being temporary, their want of solidity giving the impression of less durability than we are accustomed to. Like every thing else in that country, utility of the moment seems the watchword, making the country, as a whole, seem like a country of temporary expedients.

Riter, Conley, and Co., Pittsburg, have an immense staff of draughtsmen to carry out the structural work used in building operations; 125 draughtsmen were on one floor preparing drawings for this work, minute particulars being entered with great exactitude. Some idea of the large amount of work undertaken by this firm may be gathered from the employment of so large a staff upon work in which each portion of a great steel structure, from floor to floor, section by section, was an exact replica of each other. These steel structures are purely American in idea; the whole structure is composed of steel—wood, brick and stone being but subsidiary. The erection of the steel skeleton is no doubt somewhat dangerous, loss of life being comparatively great; but high wages are paid, the ironworkers and riveters employed in their erection getting $4, or 16s. 8d., per day for eight hours work. Four men compose a squad of riveters. In Great Britain the erection of bridges is also dangerous, but the wages paid are, in many cases, less than one-half the above-mentioned sum, and it is certainly surprising that with a relatively high cost of material and the payment of a rate of wages double that in England, the American bridge and structural maker is able to supply foreign countries with bridge work, even with the advantage the standardising of these temporary looking bridges gives them.

General Impressions.—Gambling and pleasure seeking appear to be characteristic of the American's life; these, taken in conjunction with his ordinary restless spirit, seem to shorten life, make men prematurely old, and increase insanity. Climatic conditions may be to some extent the cause of the generally unhealthy look of the American people, but the opinion generally expressed to enjoy life while it lasts has also some effect. There is, however, less regard for human life in America than in our own country. Life altogether is held cheaper, and that may be inherited from earlier times when firearms were used on the slightest provocation. Altogether I am of the opinion that a halting time will have to take place in the States. The rush for

enjoyment, the disregard of human life, the corruption of local politics and other immoralities, and the almost Continental Sunday, added to which is the disinclination to walk or make any exertion after business hours if it can be avoided, all tend toward the moral and physical deterioration of the people, and must be arrested if disaster is to be avoided.

Answers to Questions, by Mr. D. C. CUMMINGS.

Regarding the series of questions submitted to me for answer, I may at once say that many of them I could not attempt to give a definite expression of opinion upon, it being impossible to make searching inquiries into every point put before the Commission. I must, therefore, deal with those which I was able to inquire into, and which mainly affect my own trade.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Opportunities of early training and education tending towards the better equipment of workmen are certainly greater than in England, but the system adopted in America of dividing and sub-dividing skilled mechanical labour to a greater extent than prevails in England undoes the benefit of the early training. It no doubt produces a better educated unit, but from an industrial standpoint one less capable to do general work in a given trade than the average English mechanic.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. If greater facilities obtained in Great Britain to give apprentices in any given trade better opportunities to obtain a better technical knowledge of their trade, our undoubted superiority in general workmanship would be greatly enhanced.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. Technical institutes for every industrial centre should be provided, in which those learning a trade could readily obtain a theoretical and technical knowledge of their trade, the students being limited to those who are actually learning the trade for which the technical knowledge is desired.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Hours of work in my trade are generally longer in America, varying from 48 to 60 hours per week.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. As to whether more work is done in an hour than in England, I unhesitatingly say no.

Questions.

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?

7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

10. Where weekly wages are paid—
   (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
   (*b*) On this system do personal energy and initiative meet with a due reward?

11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?

13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?

14. (*a*) Do the workmen attend on a larger number of machines than in England?
   (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?

Answers.

6. Less piecework is done than in England, where shipbuilding (in so far as the iron-workers are concerned) is done at piecework rates. In boiler shops, although piecework is not worked to such an extent, yet more is done at home than in the States.

7. Our own system, while financially beneficial to the men, is also certainly beneficial to the employers, and in my opinion is the chief cause that enables them to so successfully maintain our country's supremacy in ship building.

8. When skilled workers are on piecework, American employers do not cut down wages when the men earn more than a certain given amount. On the contrary, encouragement is given.

9. Premium or bonus systems do not obtain in my trade.

10, 11, 12. Cannot express a definite opinion.

13. Introduction of a labour-saving device or improvement by a workman means to him a great personal advantage. In some well-known establishments he receives the full benefit so long as he remains is the firm by still receiving the same price for his work as he did before he introduced the improvement, the employer being content with the larger output. In many cases where improved machinery is introduced by the employer, six months or more are allowed by the employer for the man or men to accustom themselves to the machine. Then prices are amicably arranged to suit the case. Such a system makes the introduction of machinery less feared, especially as the invariable custom is to put skilled men on the machine that supplants hand labour.

14. Not in my trade; cannot say what is done in others.

Questions.	*Answers.*
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15, 16. British workmen, in my opinion, have at least as much initiative as the American workmen, and are quite as (if not more so) capable of working without continuous overlooking and frequent detailed instructions as the American. In fact, Britishers are found to be doing the best work in many of the American yards and shops, and in positions of trust.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Cannot say.
18. Are the American employers more accessible to their men than English employers?	18. American employers are certainly accessible to the ordinary workman to a greater degree than in many places in Great Britain, the head of the firm being generally on the spot and willing to listen to anyone.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Should be inclined to say yes.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Sanitary comfort, ventilation, and general comfort are to a great many employers something worthy of attention, and wherever possible work is enclosed in shops sufficiently heated to permit of the men working in their shirt sleeves in comfort in midwinter.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. The equipment of shipyards and shops in other ways, that is in machinery, is not better than in Great Britain; in fact, better machinery can easily be found in the old country. The class of work does not compare favourably.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. Do not believe there is so great an output in my own trade.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Undoubtedly there are practices in America that could be introduced with benefit to all here, the principal among them being the introduction of filtered water and of lavatory accommodation giving opportunities to wash; the system of separate upright lockers to put clothes in, and the greatest of all, the sensible heating of workshops; the desire to make everywhere light by the introduction of higher roofs, much glass, and the painting of machinery white, instead of black, our own prevailing custom, to which there are of course employers who are notable exceptions. Men can certainly work better in winter in a sensibly heated workshop than in one in which their fingers are chilled to the bone.

Questions. *Answers.*

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

24. (*a*) American workmen are greater feeders than the British; it fact, it is surprising the amount of fruit and foodstuff they manage to consume. (*b*) Foodstuffs compare favourably with our own, bread, meat, groceries, vegetables, and fruit being as low, if not lower, than London prices—certainly lower than our north country cities and towns. Coals are much dearer at normal periods, and the method of heating houses must cause a greater consumption of fuel than in our own country.

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

25. (*a*) They are certainly not better clothed. (*b*) The cost of clothing is from 50 to 100 per cent dearer than here, underclothing and boots, however, being about equal to our own.

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

26. House rent is dear. Americans insist upon more roomy dwellings than the general run of Britishers, the American mechanic generally living in a six-roomed house, with bath, hot and cold water, and electric light. The cost of house rent is a big item, houses of this description running from 12s. 6d. to 25s. a week in the various cities. I am of the opinion that American workmen do not own their own houses to any greater extent than in England, except in or about some great works or factory far removed from the big cities.

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

27, 28, 29. Average wages of time-workers are 75 to 100 per cent higher in our trade than at home, and I am inclined to the opinion that notwithstanding the greater cost of outer clothing, housing accommodation, and fuel, a careful, sober, steady man could, whilst keeping himself efficiently provided for, save more in America than in England, foodstuffs being certainly cheaper.

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?
30. If yes, does he *in fact* save more, or not?
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?
32. Is the American working man more sober?

30. Cannot give a definite opinion.
31. See report.

32. While the American workman is sober during working hours, yet he is as much inclined to a spree as the ordinary Britisher. Comparing the drink bill of America with Great Britain, I find that the annual American consumption of beer is 16 gallons against the 27 gallons accredited to the Britisher, a decrease of 11 gallons per unit per year. On the other hand, the American consumes $1\frac{1}{10}$th gallons of spirit against $\frac{1}{10}$th gallon to the Britisher, being in this case 11 times the quantity attributed to us. These figures go to show that the American is accustomed to drink a large quantity of what he calls "hard drinks."

Questions.

Answers.

Regarding drinking habits, one excellent custom prevails; in no one firm or establishment we visited was drinking intoxicating liquors permitted. Even a luncheon would be served without beer, wine, or spirits, the usual drinks being iced water, milk, coffee, or tea, an example to the men that some of our English employers could copy with advantage.

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

34. Is it true that the American workman is thrown out of work at an early age?

33, 34. Cannot say definitely.

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?

(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

35. See report.

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

36. Cannot say.

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

37. Cannot say.

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

38. Cannot express any definite opinion.

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

39, 40, 41. I heartily approve of the formation of such bodies as the Civic Federation, and would at all times lend my assistance to the formation of any similar body at home having for its object the obtaining of industrial peace by reason and common sense, aided by intelligent public opinion. In Great Britain there is already in existence the National Industrial Association, brought into existence by Mr. Lockie, M.P., its object being to promote and maintain between the employer and employé a feeling of common interest. In many trades, conciliation boards already exist, and workable agreements are in existence jointly agreed to between the employers and the men. My own trade has many such agreements, our policy being to arrange amicably our working relationships between our employers and ourselves. Although firmly of the opinion that we in Great Britain are far ahead of America upon the question of conciliation, and that sudden strikes and stoppages of

Questions.

Answers.

work are more prevalent in America than they are at home, yet I would, as before stated, heartily welcome any method that would bring about an even better feeling between employers and employés, believing such good relationships are an absolute necessity to ensure our country's future prosperity. The Civic Federation of America, or rather its industrial department, certainly sets out in a direction new to us. Its committee is composed of an equal number of leading trade-unionists and leading employers, added to which is another section equal to each of the others, composed of well-known public men who, without doubt, act as a leavening influence on the other two sections. Although willing to act as a conciliation committee and also to arbitrate, if desired by both sides, yet that is not their principal function; the chief object is to step in before an actual strike or lockout takes place, and try to bring the contending parties together with the object of securing a reasonable settlement. The formation in Great Britain of a body similar to the Civic Federation is well worthy of a trial, and it is just possible that, if overtures were made to the National Industrial Association, an association might be formed whose influence for industrial peace would be great and of immense benefit to the country as a whole.

D. C. CUMMINGS.

Mosely Industrial Commission.

Report by Mr. ALEX. WILKIE, of the Associated Shipwrights' Society.

One of the many difficulties which confront the representatives of organised labour is that of obtaining full and authentic information in connection with the respective problems and questions which more or less continually arise in the different industries. What is really required is some *modus operandi* in the form of an intelligence department, able to collect and collate facts and statistics from far and near, a result which would be in the interests of the workers, the employers, and the nation as a whole. Some such method, it is understood, the coal and iron-producing industries have through their Conciliation Boards instituted, whereby they have laid down a basis and system of ascertaining the data upon which the remuneration of labour is determined, and which have undoubtedly been the means of promoting and maintaining peace and harmony in these trades. It may be hoped that this system may be perfected and extended to all industries possible. Of late years there has been a more frequent interchange of representatives between this country and American and continental conferences, which has tended to increased knowledge of each other, and of the industrial problems the world over. While such interchanges between this country and continental nations have undoubtedly done much to bring the democracies of the various countries together, such interchange of representatives between countries which speak the same language cannot fail to promote lasting good. This is particularly so in the case of the United States and Britain, which are engaged in concurrent undertakings. The more we know of each other, the better it will be for both nations; and we feel sure that such fraternal visits will help to dissipate the prejudices, allay the jealousies, soften the asperities, created largely through misunderstandings and ignorance of each other, and strengthen and maintain those great ties which exist between the two great Anglo-Saxon nations. When, therefore, Mr. Alfred Mosely issued his invitation, it was received in the foregoing spirit. It was matterless whether in our industry we could learn anything from the American shipbuilders or not; it would at least help to extend the scope of our information, and better enable us to deal with the great and intricate questions which are continually arising in the ever progressing and changing conditions of the shipbuilding industry, evolving as it has done from the vessels of small dimensions to the huge mammoth floating palaces which cross the oceans to-day, making light of distance, and girting the world by a chain of trade and commerce, broadening our knowledge and enlarging the sympathies of the various nations, which as a result has done much to maintain the peace of the world. But great as the advances have been in the science of shipbuilding, experts in naval architecture assert that it is even yet only in its infancy, and that the future will see as marvellous an advance in naval architecture as the past has witnessed, which will necessitate the deepening of our rivers, the widening of our channels, and the lengthening, deepening, and broadening of our docks to a greater extent than has ever yet been accomplished. Because, as one authority has stated, man will live in the future almost as much on the water as he does on the land.

As was stated in the letter of invitation of the 28th August, I expected to have commenced my investigations at New York, from which point I had made arrangements accordingly; this,

however, I found on arrival at Montreal was afterwards changed, and it was desired that the Commission should proceed, as far as possible, together in a tour through some of the largest and most important towns, in a course which, it appeared, had already been mapped out, and for which purpose a Pullman car named the Castlemain had been chartered to take the Commission round.

Our part of the Commission practically commenced its tour at Montreal, which is the most cosmopolitan city in Canada, whilst its waterworks and public buildings are well worthy of a visit. On the road to Niagara we broke our journey at Toronto, the queen city of Canada, which, incidentally I may say, is one of the cleanest and best paved cities it was our privilege to visit. There I took the opportunity, for the second time within the last few years, of visiting the shipyard of Messrs. Bartram's, where we were kindly shown through the yard and over the vessels alongside the wharf; these are excellent specimens of vessels, built for the passenger traffic on the lakes, elaborately fitted, and replete with every comfort for passengers. During our stay in Niagara we visited the Shredded Wheat Factory, where the equipment of the works and the sanitary and hygienic arrangement for the workers were of a most elaborate character; but, of course, being a food manufactory, it was, no doubt, a splendid advertisement to the firm, resembling somewhat those food-stuff firms in this country, such as Cadbury's, at Bournville, etc. We also visited the power station at Niagara, where there are no less than 11 turbines of 5,000 horse power each, representing 55,000 horse power. The turbine pits are 135 feet deep. The station is well equipped, but, I understand, not better than that at Glasgow, where, it must be remembered, the initial energy is not supplied by nature as it is at Niagara. We also paid a visit to the Carborundum Company's Chemical Works, who make a substance composed of coke, salt, sand, and sawdust, which is a substitute for emery, and asserted to make a much better wheel.

The houses are principally built of wood; and so far as we could ascertain, for a five or six roomed house the rent was from $15 to $20 per month; and not only was the price of food somewhat higher than in England, but the price of clothes, etc., ranged from 15 to 25 per cent more.

Reaching Buffalo, we inspected the water front and sailed round the breakwater. Buffalo stands as a connecting link between the commerce of east and west, and is the principal eastern port for the commerce of the Great Lakes, receiving a greater volume of grain than any other city in the States, taxing its 41 elevators to the full to deal with the volume of grain which comes into the city. The electrical power generated at the Niagara Falls is now used in lighting the streets, propelling the tramcars, and driving the machinery in the mills and factories. It is a city well supplied with parks, and miles of its streets are paved with asphalt; it has 60 public schools, over 200 miles of street railways, and three public libraries. Some short distance from the town there are, in the course of erection, the great steel works of Lackawanna, which, when completed, will be one of the largest in the world. It is undoubtedly a huge place, far greater than the necessities of the case would require in our country; because, it must not be forgotten, that they have practically a continent to supply, and what might be termed a home market almost secure from outside competition; since, besides the demand of iron and steel for ship-building and bridge work, as in this country, they have a special market through their method of erecting large buildings and houses, the structural portion of which is composed almost entirely of steel and iron, and which give, therefore, to such works an almost limitless market for their production.

Proceeding onward we reach Cleveland, a city of some 400,000 people, and a great manufacturing town. Here we visited the first of the shipyards on our tour on this occasion,

this being the town where the head offices of the "American Shipbuilding Company" are located. Under the heading of this company are amalgamated the Detroit Shipbuilding Company, Detroit; the West Bay City Shipbuilding Company, West Bay; the Chicago Shipbuilding Company, South Chicago; the Milwaukee Dry Dock Company, Milwaukee; the Superior Shipbuilding Company, West Superior; the Buffalo Dry Dock Company, Buffalo; and the American Shipbuilding Company, Cleveland and Lorraine. We visited the shipbuilding yard at Lorraine, situated some 30 odd miles from Cleveland, where they have built some vessels over 400 feet in length, and with a capacity of 6,500 tons each. The vessels built are of a special character, designed for carrying the lake traffic; and so far as this class of shipbuilding is concerned, they have no foreign competition. Here pneumatic machines are applied to all classes of work wherever it is possible. It is one of the best equipped yards on the Lakes. The wages range from $2\frac{3}{4}$ per day of 10 hours, or 60 hours per week. It was practically admitted, however, that even with the aid of their pneumatic tools, which do a large amount of the work, they could not compete with British shipbuilding. The workmen's houses are principally built of wood, as is the case in many of the towns in America; and for a five or six roomed house, the rents range from $15 to $20 per month; while in the case of workmen's flats of four or five rooms, $18 to $20 per month was the rent. So far as we could ascertain from inquiries, clothing, boots, and living generally are more expensive than in England. Here we met Senator Hanna, one of the foremost men of America, who made a most sympathetic speech; at this meeting it was stated, "That the problem we had to inquire into was, how American employers could afford to pay from 50 to 100 per cent higher wages and yet successfully compete with foreign employers." Judging from the information given us, while they are paid somewhat higher wages, American workmen certainly require them, for living, speaking in its broadest sense, is certainly dearer than in England. Moreover, so far as shipbuilding is concerned, they have not been able to compete with us in the markets of the world, of which no more striking or conclusive proof could be given than the Shipbuilding Subsidy Bill introduced into the Senate by Senator Hanna himself.

Hence we went to Chicago, of world-wide fame, and were accorded an opportunity of visiting the Armour Educational Institute, which is replete with every advantage for training young men in the various crafts and professions; while the educational facilities in Chicago are of a very wide and extensive nature. Here we also visited the Armour stock-yard, which is of a most comprehensive character, employing thousands of people, and replete with machinery of every kind to meet the requirements of their special extensive business.

We also visited the South Chicago Shipbuilding Company. The equipment is of a somewhat similar nature to that at Lorraine. Here, as in most of the lake yards, whatever universal work was practicable it was carried out; that is, the plates and angles, wherever possible, were made interchangeable, particularly in the 'midship section of the vessel, and the great bulk of the drilling, riveting, and caulking was done by pneumatic machines. We found that the wages were similar to those at Lorraine, and the hours 10 per day, or 60 per week. We were also informed that the cost of living on the whole was somewhat higher than in England, and was still further increasing.

The Commission then went in a body to Pittsburg, visiting the Homestead Steel Works of Carnegie fame. They are huge works with very extensive plant, and wherever possible the work is done by machinery. Some of the surroundings are squalid and dirty, and there is ample opportunity for its founder with the means at his command to create a garden city for the workers of the steel works. Here we met a number of representatives of American workmen several of whom were originally from Britain, and we elicited the information very clearly that the American workman does not work any harder than the British artisan. That his output in

many cases is greater is due to the organisation of the works, the class of work, and the superior tools and machinery placed at his disposal. Of course, it may be a fact that in certain occupations in America there may be a greater intensity of work than in similar work in Britain, but it did not come under my observation.

A run round on the Pennsylvania line, by the celebrated horse-shoe curve, brought us to the great Quaker city of Philadelphia, and here we visited one of the greatest, if not the greatest, of the American shipyards on the Atlantic coast, namely, Messrs. Cramp's, of Philadelphia. This yard is one of the most successful on the American Continent, and has done excellent work, as is shown by its records in the volume published by the company. The yard is modelled and worked on somewhat similar principles to the yards in this country, and this is undoubtedly one of the reasons for its success. They have built over 300 vessels since their commencement, while the shipyard, including the dry docks and repair yard, cover an acreage of over 50 acres. Its water-front covers over 2,000 feet altogether. The building slips are eight in number; four have a building length of 480 feet each, two 500 feet each, and two 600 feet each. The shipyard, including the slips, machine shops, foundries, etc., is lighted throughout with electricity. It is well equipped with every appliance for saving labour and expediting the progress of work. They employ over 8,000 workmen. The wages, as far as our craft is concerned, are from $2 to $3 per day of 10 hours, or 60 hours per week. This yard has built one or two battleships for the Russian and Japanese Governments, and, so far as could be ascertained, is about the only yard which has built steel and iron vessels for the ocean-going trade.

We also visited the shipbuilding yard of the New York Shipbuilding Company at the little town of Camden, in New Jersey, where we were shown round the premises. Having heard a great deal about the new methods which were being adopted by this firm, we made our way to the mould loft, and after looking over the plans and the loft, it reminded us, by the number of moulds stored in the rafters, of an old-time mould loft when moulds were made for almost every part of the ship. But notwithstanding the so-called new methods, it was still found necessary to have some of the plates templated from their places in the ship. It appeared, however, we were inquiring too carefully into the system here, as we were informed that we were not allowed to question the workmen. After a cursory glance through the shipyard and one or two of the vessels therein we left. The yard contains three slips and a dock, and we were given to understand some ten ships had been completed. From careful inquiries we found it was generally conceded that the system was much too costly; and many of our well-equipped shipyards in this country both for their method and system are equal, if not superior to this yard. The wages, so far as we could learn, are from $2 25c. to $2 75c. per day of ten hours.

From Philadelphia we visited Washington, capitol of the United States, the seat of the United States Government, and, by the way, we may state that the Congress Library, which we were shown through, is one of the most magnificent and splendidly equipped libraries we have seen. The members of the Commission were personally introduced to and cordially received by President Roosevelt, who made a sympathetic speech, and expressed the deep interest he took in the manifold social problems of which the labour problem was one, pointing out, as industry progressed, the tendency was to work in federations, or combinations, both by employers and employés, and referring to their inherent possibilities for good or evil. "It was worse than folly," he remarked, "to take exception to either corporations or unions as such; the line should be drawn at conduct." The visit to Mr. Carroll D. Wright, United States Commissioner of Labour, of the same city, is worthy of mention for the very outspoken address which he gave to the members of the Commission. We were also courteously received at the British Embassy by our own Ambassador, Sir Michael Herbert, who tendered us a few words of encouragement.

From Washington we went to New York, where we sailed round the waterfronts and saw the immense proportions of these splendid natural harbours. In consequence of the alteration of the plan of our tour and my arrangements, and the time it was understood the Commission would occupy, it was impossible for me to get to the other shipbuilding establishments except the Naval Yard, Brooklyn. On my former visit two or three years previously I investigated into the conditions prevailing in several of the yards in other places. So far as I could gather, there are three Naval Yards belonging to the Government, namely, the Norfolk Naval Yard, the Naval Yard at League Island, Philadelphia, and the Brooklyn Naval Yard, situated on the East River, New York. The Norfolk Naval Yard, situated on the Elizabeth River, covers some 80 acres, and has a frontage of almost three-quarters of a mile; there is a large number of men employed at the yard, but since 1892, we were informed, practically no vessels have been built there by the American Government, the work done being principally repairs. The yard is well equipped for carrying out repair work, and pneumatic machinery is largely in use. At the other Naval Yard at League Island there is a large dry dock which will, I understand, receive ships of very large dimensions. The Brooklyn Naval Yard, which I again visited, is similar in its equipment to the others, and there are three dry docks. In none of these Naval Yards have any ships been built for the Government for a number of years past, and they are principally occupied in repairing vessels of the United States Navy; but while there it was reported to us that the Government were again to lay down another warship, and the sister vessel of the same was to be built in a private yard. It will be of interest to note the results. The hours of work in these Government establishments are eight per day, and the wages run from $3½ to $4 per day for artisans.

Another shipyard visited was the shipbuilding yard at Newport News. The town of Newport News is comparatively a new one, and has sprung up in the last 20 years. The yard employs some thousands of men, and the company have spent a very large amount in equipping and arranging the plant of the yard, which has its frontage on the James River. The power used for the machinery is electric and pneumatic, the latter being used in connection with the drilling, riveting, and caulking. They have built a number of vessels for the Government, and also a number for merchant work; and here, as in most places in the States, the hours are ten per day; while the wages, so far as the skilled artisans are concerned, vary from $1.75 to $2.75 per day. In this yard a large number of coloured men are employed. There is also one dry dock, and another was in course of construction which we were told would take in the largest ship afloat. There are also two yards in Baltimore, one at Locust Point, and another at Sparrow Point. The yard at Locust Point is principally engaged in repair work. The yard at Sparrow Point is comparatively speaking a new one. The wages vary from $2 to $2.75 per day of ten hours.

From inquiries and investigations made, I find that the wages paid in our craft, northward from New York to Boston, are from $2 to $2.50 per day of ten hours, and the cost of living is somewhat lower than in New York, although the style of houses is much poorer. At the Bath Ironworks, which have built a number of vessels, wages range from $2.25 to $2.50; while the same can be said of Boston, except that for repair work the rate is $3. In New London, where there are two ships building for the Pacific, the wages are from $2.25 to $2.75 per day of ten hours. The rates in New York, so far as new work is concerned, are from $2.50 to $3.25 per day, and for old or repair work $3.50 per day of eight hours. In Staten Island, in Elizabeth Port, the wages range from $2.75 to $3 per day. On the Jersey coast they are from $2.50 to $3 per day of ten hours. At Messrs. Harlan and Hollingsworth's yard, Wilmington, on the Delaware, the wages are $2.75 per day of ten hours. At Charleston they are from $2.25 to $2.50 per day of ten hours, and at New Orleans from $3.25 to $3.50 per day of ten hours. So

far as our inquiries in New York went, a single man pays over $5 per week for his board; while rent for a workman's house runs from $12 per month upwards, and the cost of living is somewhat higher than in England.

At New York the Commission practically ended, and having regard to the thousands of miles which we travelled in such a limited time, it must necessarily follow that our investigations could not be so minute and exhaustive as might be wished; but from information received and investigations made during this and my previous visit, it appears that the wages of our craft range generally from $1.75 upwards, while, except in the Government yards where the hours are eight, and in one or two places nine hours per day, the general working day is ten hours per day; so that the wages paid in our industry are somewhat higher, per hour worked, than those paid in the United Kingdom.

So far as could be ascertained from interviews with representative workmen and others of reliable authority, the work carried on is not so substantial as with us, and there does not appear to be the same regard for completeness as there is in the yards of this country. The vital distinction between the yards of this country and America appears to be that the work in the British shipyards not only has a better finish, but is of a much more stable and enduring character. On the American side they build more for the present, and have not that regard for the permanent stability which is the characteristic in the British shipbuilder. Notwithstanding the great natural resources of America in iron ore and in coal, the main elements in the production of steel, and allowing even for a greater use of machinery on a considerable amount of work done in the shipyards, it will be years before they can even approach, far less surpass, the British nation in shipbuilding; as the large shipbuilding yards of this country are not only as well equipped and as well managed, but the workmen by their training through the apprenticeship system are better equipped for turning out ships than are their American *confrères*. While the shipbuilding craft, as stated by some of the experts, is more or less an hereditary one, I am confident that this country's present pre-eminent position so far as shipbuilding is concerned has been secured, assured, and maintained through the apprenticeship system, which has given to the artisans of this country a practical training in shipbuilding, and given them a skill in their crafts which is recognised the world over. It is somewhat regrettable that, through the rush for so-called cheap labour, the apprenticeship system here has been somewhat discontinued; for we found on our tour that wherever there was a British workman of fair and average capacity, he was generally in some position of more or less trust and responsibility. This shows the importance of the continuance of the apprenticeship system as in this country, aided by a sound elementary and up-to-date secondary and technical education. So far as the United States are concerned, the fact was given to us on high authority that in consequence of the extreme subdivision, specialisation, and classification of labour, the learning of a trade was almost a thing of the past; as a result it was found necessary to obtain skilled workmen from abroad.

So far as the general plant and equipment of the yards are concerned, and the machinery in the shops (punching machines, rolling machines, planing machines, etc.), many of our first-class yards in this country are equal if not superior in equipment to those in America, but what appeared to be in more extensive use in the American shipyard than in this country were the smaller tools, such as tools for drilling, riveting, caulking, etc. But so far as concerns the constructive, erective, and general work of a shipwright, which cannot be executed by machinery, the methods adopted by our craft are, in my judgment, much more efficient in this country than in the States

A very large proportion of the shipbuilding which has been done in the States has been for what might be termed the internal navigation of the lakes, and for the huge traffic which is carried on along the enormous extent of the coast line of America, the ships built for ocean-going traffic being only of a very small amount. For this work there has been absolutely no competition from this country, inasmuch as the coasting trade of the United States is by the navigation laws and statutes purely confined to vessels which are constructed and owned in that country. This coast trade, which has been carefully protected by Government for American built and owned vessels, has continued to grow, not only through the enormous amount of coal which is carried on these vessels, but also through the increasing number of passengers who travel from place to place by these steamers; hence the greater accommodation which has been necessary for passengers and the increasing tonnage required to carry the traffic has undoubtedly contributed towards keeping many of the American shipyards at high pressure for a very considerable number of years past. As the British shipbuilder is debarred by law, as already stated, from entering into free competition for this work, it is impossible to institute a comparison at least in this line. The same largely applies in connection with those shipbuilding yards on the great lakes of the States. It is certainly a fact that it costs a good deal more and, notwithstanding the longer hours in America, takes more time to build a really first-class vessel than it does in the British yards.

In some cases, so far as the shipbuilding trade is concerned, the American employer may pay somewhat higher wages than obtain here, but he is doubtless to some extent enabled to do so by the protective tariff, and by the protection afforded him by the statute, which enables him to get such a price for his vessel as recompenses him for the somewhat higher wages. Another factor in the case is that he may be aided by the cheapness of the raw materials which are at his command. In instituting comparisons between this or any other country, in order to arrive at a right and proper conclusion it is essential that conditions should be equal, and a fair comparison between this country and the United States cannot possibly be made, because we are an older country, so far as concerns the industrial and commercial development of our nation. We have not the same natural resources, nor yet the almost boundless territory at our command; and before we could commercially develop our resources, we had difficulties to surmount which have not been encountered in America. We have not those great lakes or those splendid harbours which nature has endowed the United States with; but only streams like the Clyde and Tyne which have been artificially made into navigable rivers, able to float the largest vessel the world has seen, whereas in the United States, nature has given almost boundless stores of coal, iron, copper, lead, and nearly every conceivable kind of raw material necessary for manufacture. The long and magnificent rivers, the numerous and enormous length of railroads, which pierce almost every part of their territory, allowing the produce of the country to be brought into the markets, are all important factors in the progress and development of the United States. Perhaps another element which has assisted is the inventive faculty which has been fostered by the facilities given in America for invention through the Patent Laws, the inventor not being deterred from persevering with such inventions by reason of the costly and cumbersome laws which obtain in this country.

The three outstanding features of American industry appear to me to be its tendency towards greater centralisation, as is evinced by the huge trusts and corporations which are everywhere springing up; the specialisation of industry and the subdivision of labour, which are carried on to a much greater extent and with a minuteness which has not yet been reached here; and labour-saving machinery, which, so far as the factories are concerned, may be said to be in much greater use than in this country. On the other hand, while there are some workshops

which have excellent sanitary arrangements and are clean and well lighted, there are others, as in this country, which are just as unsanitary, dirty, and congested. There does not appear to me to be the same regard paid to life and limb of the workmen in America as in this country, which may be attributable perhaps to the absence of those factory laws we have here. Generally speaking, therefore, I do not think, as far as the shipbuilding trade is concerned, except in a few instances, the American shipyards are better equipped than those of this country. To speak generally of what I saw on the tour, machinery is in more general use than with us; but, on the other hand, the hours of labour are longer in the week, while the character of the work, its finish, its stability, its permanence, and its durability, is no better than is done in this country. The wages per hour are higher, even having regard to the longer hours worked, and as to the cost of living, generally speaking, I do not think there is much advantage on the side of the United States; and in the shipbuilding industry at least I am satisfied that we can hold our own for years to come.

I cannot conclude without expressing cordial appreciation of the courtesy and kindly treatment we received during our sojournings in the States. As the fraternal representative from the British Trades Union Congress to the American Federation of Labour in 1899, it was a pleasure to me to again meet many of the representatives I met at the Detroit Convention and renew their acquaintances. I have also to express my thanks for the good feeling and fellowship shown to us by the representatives of the workers, employers, and the members of the Civic Federation in America.

As at the first, permit me to state, we appreciate the invitation from Mr. Mosely, who gave so many representatives of organised labour in this country an opportunity of increasing their information. But these questions and the conditions which obtain not only in America but in other countries of Europe, bring forcibly to my mind the fact that it was impossible to get to the bed-rock of these matters in the time at my disposal. I am of the opinion that such investigations should be mutually continued from both sides, but that they should be undertaken jointly by the organisations of the workers and of the employers in the same trade or industry, aided and assisted by a representative from the Government of both nations. The interchange of representatives on each side which would take place as a consequence would do much to bring the English speaking races, at least, into one harmonious whole to the mutual benefit of each other, and to cement and consolidate the Anglo-Saxon people all over the world.

Answers to Questions, by Mr. ALEX. WILKIE.

With regard to the list of questions, many of them would require as many months of investigation to give a proper and conclusive answer as we were weeks on the tour.

Questions.	*Answers.*
(a) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1, 2. I am certainly of the opinion, from the schools we were enabled to see, that the elementary education given under the English, and especially under the Scottish, School Board system is equal if not superior to the education given in the majority of the States
2. If yes, what changes would you suggest in the English system of education for the working classes?	

Questions.

Answers.

in the American Republic. But in America the secondary and higher education is more within the grasp of the youths of America. I am strongly of the opinion that the apprentice system should be continued here and perfected by our British shipbuilders, so that the apprentice should have every opportunity of practically acquiring all the intricacies of the craft, and that the secondary and technical education should be placed more easily within his reach, to secure that scientific and theoretical knowledge appertaining to his special trade. The strong point, in my opinion, of the educational system of America is the facilities given for youths to attend school longer, and for those who desire it and show ability and brain power to secure the highest education which can be given. In the United States the system of public education is much more highly developed as a whole, while almost every town can show its elementary, secondary, and higher school.

3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?

3. There should be no limitation of any kind as to students attending the evening classes, and special facilities and inducements should be given for both youths and men after the completion of their day's work to attend such classes, and master the theoretical and scientific side of their craft, so that they may have a knowledge of the component parts with which they are working, and, so far as shipbuilding is concerned, may obtain accurate and correct information as to the stress, strain, and stability of the materials upon which they are engaged, and understand clearly how a vessel's form is obtained and maintained.

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?

4. The general hours of the shipbuilding workers in America are almost universally ten hours per day, but in the Government yards, as in Britain, they are 48 hours per week. They are thus, speaking generally, six to seven hours per week more than in England.

5. Does the American workman do more or less in an hour, on average, than the English workman?

5. It is almost impossible to give a definite or conclusive answer; but by those from whom we made inquiries, many of whom have worked both in this country and America, we were assured that they worked no harder in the American shipyards than they do in the British yards.

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?

6. Speaking broadly, the piecework system is not so much in vogue in the States so far as shipbuilding on the whole is concerned as in this country.

7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?

7. Where piecework rates are the subject of mutual agreement between the workers and the firm, it is equitable to both; but where they have been arbitrarily fixed by the management without any reference to the

Questions.

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?
10. Where weekly wages are paid—
    (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
    (*b*) On this system do personal energy and initiative meet with a due reward?
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?
14. (*a*) Do the workmen attend on a larger number of machines than in England?
    (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How

Answers.

men whatever, then the men contend that the system is simply to the firm's advantage.

8, 9, 10, 11. It is impossible, from the information I was able to glean, for me to give any statement on these points which would constitute a satisfactory or conclusive reply.

12. From inquiries we were enabled to make, we did not find any objection by the workmen to labour-saving appliances where they received a fair share of the value of the increased output as a consequence of their introduction. When the same basis is acted on in this country there is no objection on the part of the workman.

13. I have been informed that in some establishments in America the workmen are given opportunities to suggest improvements in the conduct of the business they are engaged in, and there is a greater tendency to encourage suggestions from the workmen than is generally done here. Some such plan on a fair and reasonable basis would do no harm in the works and factories in this country; in fact, one or two firms here do recognise any improved suggestions, and give rewards according to the merit of the improvement.

14. This question is not applicable to our trade.

15, 16, 17. Have no definite data on which to frame replies.

Questions.

does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?

18. Are the American employers more accessible to their men than English employers?

19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

(C) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

Answers.

18. It was frequently asserted that they are.

19. So far as the shipbuilding trade is concerned, the expanding nature of the industry naturally presents more opportunities for advancement than exist where a trade is in a steadier and more developed state.

20. There are some factories which are well equipped with regard to lavatories, and sometimes provision has even been made for recreation, by libraries, &c., and while in some factories the sanitary arrangements are good, many others are inferior both as regards sanitation and ventilation when compared with similar factories in England. In America there are sweating shops as bad as are to be found in Britain.

21. (*a*) Speaking generally, and applying the question as to shipyards, I do not think so. (*b*) The management required in shipyards is that of a specially trained nature, and managers should have a practical knowledge of the work they have to supervise.

24—38. As to questions 24 to 38 it is impossible to give any decisive replies which would be of any real and abiding value to my fellow-workmen, as there are so many sidelights and issues which must be taken into account, and no definite data were given us on which to form a conclusive and accurate opinion. In regard, however, to the cost of living, I have in my report, at those places at which we were, given as far as possible the information as to the rent of houses, the price of clothing, food, &c.; and while in some instances the price of what may be termed the necessaries of life are in some places somewhat lower than in this country, it is counterbalanced by the

Questions.

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?
26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?
30. If yes, does he *in fact* save more, or not?
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?
32. Is the American working man more sober?
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?
34. Is it true that the American workman is thrown out of work at an early age?
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

Answers.

more expensive cost entailed by taking part in social pleasures, luxuries, and recreation. The question of temperance is a very wide one, and I am not disposed to state a definite opinion about it. But it is somewhat strange, if the assertion is true, that the American workmen are more sober than the British, that it is stated that of 16 States of America, each of which originally had Prohibition Laws, all but five had departed from them and adopted other systems, and one of the five, namely, the State of Maine, has Local Option in Bangor.

39. So far as I have been able to receive information in connection with the working

of the Civic Federation, I am in entire sympathy with its aims and objects, which I understand are that when a difference is likely to arise between the workers and the employers in any industry, they endeavour to have them brought together before any cessation of work takes place or any strong feeling is evolved; and in the event of any difference culminating in a cessation of work, to assist by every conciliatory and technical means possible to arrive at an amicable termination of the difference.

40. Could an organisation on the same or somewhat modified lines be introduced into England?
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

40, 41. With regard to the formation of an organisation of this kind in Great Britain, it is a well-known fact that already several agencies exist with somewhat the same objects in view. While I am in favour of all means which will bring the two great forces which make for industrial and commercial activity together, and tend to promote a more harmonious relationship between employer and employed, I am strongly of the opinion that if failure is to be avoided, which is sometimes caused by a multiplicity of organisations, an effort should first be made to fuse into one all the present forces and organisations which are making for this object, which would conduce largely to the general welfare of the nation. In this direction I should be pleased to assist in the bringing about of that assimilation of forces, and thus secure the cohesion of all such organisations at present established for the purpose of promoting industrial peace.

Alex. Wilkie.

Mosely Industrial Commission.

Report by Mr. ROBERT HOLMSHAW, of the Sheffield Cutlery Council.

In making a comparison between American and Sheffield modes of manufacturing it must not be forgotten that the manufacturing interests of America are of much more recent growth than is the case in England; for this fact has given America the opportunity of equipping herself with Sheffield's best and leaving out her worst points. It must also be borne in mind that the work of investigation is rendered very difficult, owing to the wide area over which the various industries are spread. In one village one may find a couple of factories, and then have to travel long distances before finding another. This circumstance and the limited amount of time at my disposal prevented my making as exhaustive a study of the conditions of our trades as I should have liked. It was, moreover, difficult and sometimes impossible to get admission into certain factories—there having been no previous arrangements made for such admission. The comparative smallness of these industries and their isolated nature no doubt accounted for this.

The workshops I saw were, with few exceptions, very good, being large, well-lighted, and heated by steam pipes. This is not the case in Sheffield, where the open fireplace has to be relied on for warmth, and only succeeds in warming that part of the workshop nearest to it. One point that struck me in the cutlery manufacture in America, and which, to my thinking, contrasts favourably with our system in Sheffield, is that there is no outworking. All parts of the work are done on the factory, and this saves the great loss of time which must take place where outworking is practised. Factory management is far better in America than in Sheffield. Every attention is given to the comfort and convenience of the men, with the result that the great waste of time so common in our own town is there unknown. In an American factory a good stock of the raw materials used in manufacturing is kept ready for use—such as blades, handles, scales, springs, and all other parts required in the making of a knife. This means that there is no unnecessary waste of time, as is the case where a man, on receiving an order, has to repair to various parts of the factory, and perhaps to some distant factory, to secure the requisites for his work. This saving of workmen's time is noticeable all over the factory. The employer's object is to turn out as much work as possible, and he knows that the best way to accomplish this is to make the workpeople as comfortable as possible, and place every means for rapid working at their disposal, with the result that the men can earn good wages under good conditions, and the employer is sure of an increased output. There were certainly some workshops I visited in America whose conditions are much below the general standard, but even here the same system of preparedness was noticeable. In Sheffield, so far as I know, only one firm has the same methodical time-saving system.

It is undoubtedly true that there is less drinking among American workmen than we find among our own. This applies not only to native Americans, but to Englishmen settled in America, who speedily fall into the accepted customs of the country. The workmen in the States commence work in the morning to time, and work steadily through the day. The Sheffield workman works harder than the American, and, of course, is in many cases equally sober; but it cannot be denied that there are many instances where the fatal drinking habits result in great

waste of time, and consequent annoyance to the employer. The cause and remedy for this are, perhaps, the most serious questions that could engage the attention of the Sheffield manufacturer. Personally, I believe—especially after this brief glance at American workshops—that some of our obsolete customs of workshop management are at the root of this deplorable state of things. Enforced loss of men's time for trivial causes through no fault of their own, too often gives the opportunity for leaving work which would otherwise not be sought.

There is a much more extensive use of machinery in the States than in Sheffield for cutlery purposes. All table blades are forged by steam hammers or cut out of sheet steel, "flied." All boring is done by machinery, and the holes required are made by one operation. Spring knife blades are forged in some firms, but in all cases by Sheffield men; the greater proportion, however, are pressed by machinery. Grinding machines are in use in some of the factories, but only to a very small extent, and then only to do common work. Spring knives are made on the same principle as in Sheffield, with the exception that all boring is done for the men. Grinding of spring knives is largely in the hands of Sheffield men, and is done in Sheffield ways. America makes no fine scissors, but makes some shears of malleable iron and some steel-lined. The common work is ground on emery wheels, and the better work seems to be ground largely on the German principle—that is, the workman sits in front of the stone, and by the aid of a large flat stick presses the blade to the stone with his knees. The labour is divided, one set of men grinding and others finishing. Bows are dressed by men on a belt. Sheffield steel is largely used in the manufacture of the best cutlery, the reason given to me why American steel is not used being that its temper varies so much, while the temper of English steel is more even.

Tools and workroom are provided for all classes of workers, with the exception that in some cases the cutlers have to provide their own files. This is strikingly opposite to Sheffield custom, where the grinder and cutler not only provide their own tools, but pay rent for room and power in their employer's own factory. The result of the American system is obvious. It is to the employer's advantage to keep his men well supplied with work, otherwise his machinery is running at a loss. In Sheffield, whether the workman has sufficient work or not, the rent must be paid, and there is consequently not the same incentive to find regular and continuous employment for the men. It will readily be seen that there are times when this system is the cause of great loss to the men. A 10-hours day is the rule in America, with a Saturday half holiday from April to September. Wages are higher than in Sheffield, generally about 100 per cent. In the silver and allied trades there is great division of labour. A man does not begin and finish an article as with us, but is engaged on a special part, the article itself going through several hands. Machinery is largely used in this branch of trade. The greatest novelty that I saw was a die-sinking machine, which appeared to require little attention. Another interesting little machine was used for straightening wire. Burnishing is done by men with the same tools as are here used by women.

The apprenticeship system of America is very different from the English one, and no doubt the chief reason for the difference is to be found in the exceptional chances American employers have of filling their workshops with trained men from England and the Continent. There is not the same eagerness to apprentice lads as with us. In one large silver factory I visited, they had not a boy under the age of 18; the manager told me lads were more bother than they were worth. In a razor grinding shop where 30 men were employed, there were only two boys. The same scarcity of apprentices struck me in all the shops. The long apprenticeship system of England is unknown. The American boy, on leaving school, wants to get money, and plenty of it, and seldom enters any business which demands a long wait before he can command good

wages. The cutlery trade requires too many years to learn, to suit the taste of the young American. At the Cash Register Works, at Dayton, no boy is engaged under the age of 18, when he must have taken a course at the Technical School. His time of apprenticeship then is four years—from 18 to 22. The great specialising of work in many industries makes a shorter apprenticeship possible, but on all hands I heard that the British-trained workman is the best in the States, even when working on the American plan.

People and Education.—There is no mistaking native Americans, and as one observes their independent bearing, their shrewd 'cuteness and general air of alertness, one begins to feel prepared for interesting developments in every phase of their national life. Perhaps their most striking characteristic is their intense devotion to everything American—a not unnatural devotion, though perhaps at times emphasised in somewhat of an aggressive character. "The finest in the world," is a phrase frequently on their lips, but one soon feels so strongly the wonderful fascination of a country which has such superb natural advantages that one can hear the harmless boasting with equanimity. Another characteristic one cannot help noticing is the prevalent desire for making money. The very children are inspired by it, and perhaps one result of this national ambition strikes us at first as novel, but on second thoughts it is natural enough. This is the absence of any false pride, which, speaking broadly, results in the unconscious recognition of the dignity of labour. Whatever a man can honestly earn money by, no matter what his social position, he counts it no disgrace to do.

Americans have seen clearly enough that the greatest force to enable them to win their way in the world's markets is education, and they have made wonderful strides of late years to improve this. So far as I could judge there is little difference in the elementary school life of America and England, save that the former has no religious difficulty to contend with. There is, in fact no religious education in America, as we understand the term, yet secular education there produces results that outwardly, at anyrate, bear comparison with our own. There is a remarkable absence of bad language in the streets; this was particularly noticeable in the Saturday night crowds. In one school I was told that it was the custom to assemble all the scholars twice a week to hear an address from the principal, the character of which seemed to me to be marked by a sound moral significance. There seemed to be a high standard of personal dignity among the scholars, and I should have liked to pursue further the study of moral teaching in different schools. In both the States and here education is free, and the best elementary school buildings in England will compare with the best I saw in America. American classes are smaller, and boys and girls are taught together. In the New England states the age at which a child can leave school is 14, as in our own country, but it is at this stage America's supremacy comes in, with her splendidly equipped and adapted system of continuation schools. It struck me that there was a very apparent desire on the part of many parents to allow their children to continue at school after the ordinary leaving age, and all who are acquainted with working class homes will know and appreciate the self-sacrifice of parents who allow their children to enter on a four years' course in a commercial school, after leaving the ordinary elementary school. In one such school at Philadelphia, out of 177 boys, 55 were the sons of working men. Technical schools constitute one of the great features of American higher education. Mechanic Arts are a form of technical school. These are splendidly equipped, the tools and appliances being of the very best, and all free. Equal opportunities here are indeed possible. In one fine school at Boston (Mechanic Arts High School) the principal pointed out to me in haphazard fashion a lad who was the son of the richest railway director in the State; on one side of him was the son of a large builder, and on the other a lad who sold newspapers in the street at night. Technical education is recognised

as a necessary factor in developing and securing the national prosperity, and, undoubtedly, the higher educational standard which must be apparent when these technically-trained youths take their places in the commercial life of the nation cannot fail to have important results. Already we hear of employers offering rewards for suggestions from their employés as to improvements capable of being effected in the works. Such suggestions naturally come more readily to the trained mind than to the untrained. In very many instances one could not help noticing that employers and employed were less widely separated than is usual, and it is fair to assume that as higher education progresses this feature will grow still more universal, with the best results to both sides. High schools and technical schools are just as well equipped for girls as for boys, and one has only to think over the well-chosen curriculum to realise how surely America is building foundations for future success. At the National Cash Register Works at Dayton there are 300 girls employed, many of them graduates of the high schools, and, judging from their many interests, as set forth in a magazine edited by themselves, all are girls of superior attainments. The conditions under which these girls work are ideal, and their wages, we were told, run up to $10 per week. Women's wages throughout the States are very much higher than in England, and no doubt this fact is conducive to the proverbial independence of the American woman.

Industrial Conditions.—It may be asked—How can American manufacturers afford to pay such high wages and yet compete successfully in the world's markets? I have already noticed in the Sheffield trades section the employment of machinery wherever possible, and it must be borne in mind that this is the case to a still greater extent in other industries. "Save labour," "cheapen production," and "increase the output" are the watchwords of American manufacturers, and to the attainment of these ends all their energies are bent. Labour-saving machinery is not used for the purpose of reducing wages. At the present moment there is work for all, but America is now passing through a period of great prosperity, and is taxed to the utmost of her productive powers to execute the work demanded of her. When the inevitable time of slackness comes, then will be the test of how labour will fare in the matter of wages. Meantime, the means of production are being increased wherever possible. It is claimed that the Lackawanna Steel Works, now being erected at Buffalo, will turn out one-tenth of the steel production of the United States. These works have a capital of £8,000,000 sterling; 1,500 acres of land have been acquired, and the works erected (or in course of erection) will cover 40 acres.

The natural advantages of America and the uses made of them play no small part in developing the industrial life of the country. Natural oil and gas, which are got so easily and cheaply from the earth, must of necessity give a great impetus to certain industries. At the Homestead Steel Works all the heating of the ingots for the rolling mills is done by the aid of natural gas, not one ounce of coal being used for this purpose. The usual sidings full of coal wagons that one is so familiar with at works of this description are absent. The saving of labour in stoking alone must be enormous. The splendid waterways are of great use, and provide a cheap and ready means of conveyance both inland and to the ocean. Thus the iron ore is brought from Lake Superior by the great lake steamers, which on their return take back a cargo of coal. At Buffalo this use of the waterways is illustrated by the way the corn is brought down and coal taken back from lake to lake. At the ports every means that man's ingenuity can devise is used to facilitate the loading and unloading of ships. The corn is taken out by elevators, and the coal is put in by means of machinery. It is claimed that a wagon containing 40 tons of coal can be unloaded in 2½ minutes.

Cost of Living.—This, with the exception of rent and clothing, varies little from that of England. Rents, however, are much higher, running from 10s. to 16s. per week for from four to

six rooms in a flat. Clothing is very much dearer—at least 50 per cent—quality for quality. Shoes are cheaper—good-looking men's boots from 12s. to 14s. per pair. Fruit is cheaper—large bananas a halfpenny each, good apples 1s. per peck. The following is a workman's provision bill in Newark, New Jersey (1 cent = ½d.):—

Beef	16 to 18 cents per lb.
Potatoes	25 cents per peck.
Sugar	10 cents per lb.
Tea	50 cents per lb.
Coffee	30 to 35 cents per lb.
Butter	31 cents per lb.
Eggs (New Laid) ...	30 to 35 cents per dozen, beginning of December.
Milk	7 cents per quart.
Skim Milk	6 cents per quart.
Soap	5 cents per lb.
Gas	1 dollar 10 cents per 1,000 feet.
Rice	6 cents per lb.
Paraffin	10 cents per gallon.
Oranges	30 cents per dozen.
Peaches	8 cents per quart.
Strawberries	5 to 9 cents per quart. (1½lbs.)

Answers to Questions, by Mr. ROBERT HOLMSHAW.

Questions.

(A) EARLY TRAINING OF THE WORKER.

1. Is the American lad better equipped by early training and education for his work than the English lad?

2. If yes, what changes would you suggest in the English system of education for the working classes?

3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?

Answers.

1. In the early school life the opportunities seem much the same in both countries; but there is every possible encouragement for the American lad to continue his education after the elementary stage, and this is largely taken advantage of. The recognised necessity for, and establishment of, commercial schools manual training schools, or mechanics art schools, in the United States has undoubtedly had the effect of inducing many parents to make sacrifices in order to give their children the benefit of such a course as will ultimately enable them to start work with the best equipment.

2. Continuation schools, especially technical, where the youth may be fitted for industrial life, should be a feature in every community. These should be suitably equipped, and free to all.

3. As far as possible, the same tuition should be given in the evening schools as in the higher day schools, and lads encouraged to take advantage of the classes. Technical education in evening classes should be as free as other branches, and should be so designed that every mechanic, of whatever grade, may gain special scientific knowledge useful to him in his daily work.

Questions.

Answers.

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?

4. In America the working day for the cutlery trades is ten hours; in Sheffield the same trades work nine hours.

5. Does the American workman do more or less in an hour, on average, than the English workman?

5. The American workman does not actually work harder than the English workman in an hour; yet his output in certain branches of the cutlery trade is greater, because of the improved conditions under which he works.

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?

6. Piece rates are general in the cutlery trades.

7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?

7. From my observations in the cutlery and silver trades, the system of piece rates works out beneficially to both sides, and gives no unfair advantage to either.

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

8. In the cutlery trades I heard no complaint of this practice, but in the Britannia metal trade I was informed in one factory that it was the custom for the employer either to cut down prices or to put the workman on day work at a lower rate than he had earned on piecework.

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

9. Premiums and bonuses do not exist in the cutlery trades of Sheffield, nor did I hear of them in America.

10. Where weekly wages are paid—
(*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
(*b*) On this system do personal energy and initiative meet with a due reward?

10. (*a*) We visited a variety of factories where weekly wages are paid, and so far as I could judge in each case the men were working steadily, and there was no appearance of any desire to give other than a fair day's work.
(*b*) There appears to be no system of rewarding personal energy and initiative by increased pay, but workmen showing exceptional ability are frequently promoted to superior positions, as in the Cash Registry Works at Dayton, where all the managers have been selected from among the workmen, on account of some superiority or intelligence.

11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

11. One of the main objects of American manufacturers is to increase the output, and this is accomplished by improved machinery and not by greater energy on the part of the men. When the output is increased by machinery, wages are not increased.

12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?

12. Labour-saving appliances and up-to-date machines are welcomed by the men, because, while lightening the work, they do not mean the reduction of wages.

13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?

13. Yes; in certain cases that came under our notice this system of rewarding the workmen for suggestions for improvements was freely practised.

14. (*a*) Do the workmen attend on a larger number of machines than in England?
(*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?

14. This question belongs to the engineers, and as it did not come under my observation, my answer could only be a surmise.

Questions.

15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?

16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?

17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?

18. Are the American employers more accessible to their men than English employers?

19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

Answers.

15. In the cutlery trades where piece rates prevail there is no overlooking of the workman, but the work is examined in the warehouse when it is finished. The same system prevails in both countries.

16. This question does not apply to the cutlery trades, as is obvious from previous answer.

17. In the silver and allied trades of America there is a great deal of overtime made—generally just before Christmas, when much of this class of work is needed for Christmas presents. Under the present system the men have to work if required, and the element of cheerfulness does not come in. In November the overtime in Meriden in the above trades was averaging about three hours a day. The output per hour of overtime in these trades is the same as the output in the normal day. In Sheffield there is not much overtime worked either in the cutlery or silver trade; when it is worked it is for a short time before Christmas—for the same reason as in America, though not to the same extent—and the same amount per hour would be done as in the normal day. Being only of comparatively short duration, however, in both countries the strain on the men is not a long-sustained one, or the answer concerning the output might be different.

18. Employers and men seem generally more in touch with each other in the States than is the case in England. The employer talks over the work and invites the opinion of the men upon any new project, and the men are encouraged to make suggestions for the good of the business. If a man has a complaint to make he can go direct to his employer, which would be a somewhat unusual proceeding here.

19 Yes. This may be due to the more recent growth of manufactures. It is evident that men with exceptional ability will have a greater opportunity of rising or making their mark in a new country where fresh developments are eagerly seized upon, and, as in certain cases that came under our notice, where distinct encouragement is given to the worker to think out improved methods. It was not unusual to find in many factories that such men were appointed to positions of trust and responsibility. My observations led me to conclude that such appointments are more common in America than in England.

20. In the cutlery trades the workshops, as a rule, are better fitted up than the generality of Sheffield workshops, though there are both extremes—the good and the bad—

Questions.

Answers.

in America as here, and, as a matter of fact, the worst are inferior to our worst. Some of our newest factories are equal to the best American ones, but, speaking generally, the comfort of the worker is more considered there than here. The ideal conditions existing for the comfort of the workers in the National Cash Register Company at Dayton, and in the Shredded Wheat Company at Niagara, cannot be taken as the actual standard of excellence reached by American workshops; they are as exceptional as Bourneville and Port Sunlight in England.

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

21 (*a*) Yes. There is a greater use of machinery, and no expense is spared to secure any new device that will increase the output. (*b*) In the cutlery trades, yes. The work is given out systematically, and no pieceworker has to waste any of his time in journeys to various parts of the factory for work, as is the case too often in Sheffield. In American factories the time of a skilled workman is too valuable to his employers to allow of its being frittered away in running about for work; hence the methodical system which sees that each man has his wants supplied by unskilled labour. Speaking generally, there seemed to be a greater proportion of trained men employed in the management than in England, and this is no doubt due to the increased facilities America has for such training. (*c*) No. Speaking generally, English factories turn out better work than American.

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

22. To my thinking, neither of these causes accounts fairly for the increased output, which is due chiefly to the employment of better machinery, to the extensive use of labour-saving appliances, and to better workshop management.

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

23. (*a*) Better workshop management, by which waste of time might be avoided. (*b*) More frequent meetings between employers and employés, at which the interests of each respectively might be discussed, and individual difficulties explained and understood.

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

24. (*a*) My experience is too slight to deal fairly with this question. In the few working-class homes I entered the food was good and abundant, but this would be so at home in similar cases. The custom seems to prevail of having three good meals a day, and so far as I saw, perhaps the consumption of meat enters more into an American dietary than into ours. (*b*) The price of food is much the same in both countries; while some articles are dearer, others are correspondingly cheaper.

Questions.

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?
30. If yes, does he *in fact* save more, or not?

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?
32. Is the American working man more sober?

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

Answers.

25. (*a*) Away from work the American workmen are not better clothed than the English, but it struck me that men going to and from work were better dressed than English workmen under the same circumstances. Overalls are largely worn at work, and this custom enables the workmen to preserve their clothes. (*b*) Clothes are dearer in America—there being a difference of about 50 per cent in the cost.

26. (*a*) No. In large cities the flat system prevails more than with us; but speaking generally, and with an Englishman's recognised leaning towards a separate roof-tree, the average American workman is not housed better than the average English workman. (*b*) Rents paid by working-men are much dearer than in Sheffield and the North of England generally; I have no experience of the South of England. From my inquiries I gathered that rent varies from 10s. to 16s. a week. Here the same accommodation varies from 6s. to 8s. a week. (*c*) Yes; and the reason is chiefly the natural desire to save paying the high rents. There are good facilities offered for buying the houses on the instalment system, and these are largely taken advantage of.

27. Wages are generally about 100 per cent higher in America than in Sheffield.

28. It will cost the American wage-earner 50 per cent more to live than the English worker, taking into account the high rents and high prices of clothing.

29. Yes.

30. I have no sufficiently reliable data to answer this question from an average standpoint; but various Englishmen settled in America assured me that they had saved more than they could have done in the same time in England.

31. No.

32. Yes. There is less drink per head consumed, according to statistics. The beer is lighter, and less easily intoxicates. It is unusual to see intoxicated men in the streets.

33. I found no instances of young American working men doing a larger amount of work than would be the case with men of the same age in England. I saw as great a proportion of elderly men at work in the factories as there are in the English factories. Englishmen who had been in the States 40 years, and who would be 65 years of age, were still at work.

Questions.

34. Is it true that the American workman is thrown out of work at an early age?

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

Answers.

34. I can only refer to the instances quoted above. I had not sufficient opportunities to make a reliable general statement on this point.

35. I have no figures on this point, and can only say that in similar trades carried on in the two countries I found no marked difference in ages.

36. I have had no opportunity of getting the necessary statistics to answer this question.

37. I don't know; my stay was too short to enable me to pursue this subject.

38. No. The English workman has more leisure, and consequently more opportunities for enjoyment and recreation, than the American workman.

39, 40, 41. I have had no opportunities of judging the working of the Civic Federation, but from what I have heard I believe it is a power for good in the prevention of labour disputes, and anything that will help to that end is to be welcomed and would have my support.

Robert Holmshaw.

Mosely Industrial Commission.

Report by Mr. T. JONES, representing the Midland Counties Trades Federation.

The reports of the members of the Mosely Commission who went to America to investigate the conditions under which the people work and to inquire into their social conditions (speaking for myself) cannot be regarded as complete but rather as a preliminary one to be followed, it is to be hoped, by others with more time and better opportunities of seeing the works than we had. It would have been well had a meeting of the delegates been held previous to our departure, so that we might have known by what route, and to which towns it was proposed to travel. Correspondence might have taken place, and by that means we could have ascertained in what towns the trades we were specially interested in were located, had this been done much dissatisfaction might have been avoided. It would also have been better if we had been taken into confidence when the arrangements were altered from time to time. The circulars inviting us to go said that arrangements would be made for us to be taken to the works we wished to see, but in only two towns was I able to get anyone to show me the works or accompany me through them, although I represented some ten trades, nor could I learn that any of them were in the towns we went through, until I was hundreds of miles away, when I learnt I had passed them. I hope in any future deputations this will be avoided. We are indebted to Mr. Mosely for giving us the opportunity of visiting America. My only regret and disappointment is that I have not been able to get a better insight into the matters we went to investigate.

I must protest against the time limit for sending in our report (January 12th). It is the busiest time of the year with secretaries who are compelled to do certain work the first week or two in January; it seems undue haste to insist on having them in on that date, and I fear it will lead to a considerable curtailment of the reports.

The various works which were on the official programme, such as shipbuilding yards, engineering works, steel works, &c., were interesting and instructive to us. But we should have done infinitely better if we had been among our own particular industries.

Nuts and Bolts.—The first works I had an opportunity of visiting was a nut and bolt works. They did not make any of the larger sizes. The workshop was packed with machinery; there was scarcely any hand labour. The forging machines run very fast, and they make large quantities. There were 100 large machines in one shop, and on the second floor quite 200 more, worked chiefly by youths, who look after two or three machines. Many of them headed, pointed, screwed, and cut the bolts off automatically, turning out vast numbers. All the machines with the latest improvements had been introduced by the foremen, who derive a benefit from their ingenuity. They work 10 hours a day. The lads earn from 5d. to 1s. per hour; there is not much piecework. The forgers earn from 12s. to 13s. per day. Another works I visited in the same town the same remarks apply, except there was a considerable number of girls working some of the machines. Many of them are automatic, and require no labour only supervision. The girls earn about 3s. 4d. per day; the work appears to agree with them, for they looked healthy and robust.

The works I visited in another town were the largest of the kind in America. They employed 2,400 men. Their warehouses are half a mile long and over 30 yards wide. They roll most of their own iron for nuts and bolts. They use large quantities of scrap made in piles fixed on pieces of wood, which keep the piles together and go in the furnace. They have some thousands of tons of scrap, and have no difficulty in getting all they want. They roll rounds or flats of exceptional length. The whole of the furnaces are heated with oil, and coal ground to dust for this purpose. All the forging is done with machines, of which there is a large number and of great variety. Men work 10 hours a day and earn from 12s. 6d. to 24s. per day. The nuts are made in the same way as here, but their machines work faster. A youth will head and square under head and cut off 5,000 ½in. bolts per day. They have some screwing machines screwing eight and nine bolts at a time, youths feeding them. Many of the machines are automatic.

TUBES.—The largest manufacturers of tubes are supposed to be the National Tube Works Company, whose principal works are at McKees Port, some few miles from Pittsburg. An application for permission for us to go through the works was made by Mr. Jarrett, of the Iron and Steel Works Union, and was met with the reply, that the English tube manufacturers had refused members of the firm admission to their works, so they had decided to adopt the same course towards Englishmen. An application made by me at Philadelphia met with no better success, the works there and at Reading being part of the National's concern. It was rather hard lines on us that we should have the sins of the employers in this country visited upon us for any act of theirs over which we had no control. But in spite of this prohibition I was able to visit some works on a large scale, thanks to Mr. Gray, vice-president of the Manufacturers' Club, Philadelphia, who kindly gave me letters of introduction to various employers.

The works I visited the men worked 60 hours per week, and the furnaces worked night and day. Here, as in other industries, machinery plays a more important part in the manufacture than in this country. The result is (not that the men work harder) that the tubes are longer, and they make more of them in a given time than we do and with a less number of men. Tubes are made up to 16 inch; from the strip to the finished tube they are moved about by machinery worked by youths. The tubes, by an ingenious arrangement, are kept perfectly straight when finished, and do not have to be sprung as they do here. Each tube registers itself, so that there can be no mistake in the count, and the welder can see at any time how many tubes he has made in a given time.

Malleable and cast fittings are largely used on tubes in America; few wrought iron ones are used. But the sockets are wrought iron. Every hotel, office, railway station, tram car, railway train, and almost all works are heated in winter, so that there is a very large demand for home consumption. They store very heavy stocks. Trade is very dull with them at present.

Sockets are made under different conditions to what they are here; there is a subdivision of labour. For instance, the socket maker does not turn them, that is done for him. He simply welds and finishes them. He works hard and is well paid for it, getting about 14s. 6d. per day. Welders get about the same, or rather more; other workmen get from about 9s. 6d. to 11s. per day. They have special machines for expanding or reducing the size at the ends of tubes for 7 or 8 inches. In moving large tubes about, where there is no machine to do it, they use iron trucks, one at each end of the tubes, and not one in the middle of the tube as we do; they are more easily worked. There are no coal furnaces; all are heated with water gas, socket furnaces as well. There is no smoke in the furnace, and the tube can be seen all the time. The welder can see from some distance when it is ready, and he has only to put the machinery in motion.

The gas is manufactured by themselves; they have 18 converters for that purpose. There are a number of valves along the side of the furnace so that the heat can be regulated instantly. They have (compared with our manufacturers) enormous stocks laid down in huge stacks close by the railway siding, so that they can be loaded into the trucks when required. The trucks are over 30 feet long. Railway sidings run into most of the works. The trucks run up an incline and are emptied bodily, thus saving cost of unloading.

The works are not so crowded as they are here. There is much more space per man, and the result is, the tubes can be moved about by the machines without anyone touching them. No less than three foremen in one tube works I visited were Staffordshire men, who had left the old country in the hope of bettering their positions. They had not been disappointed.

Edge Tools.—The Americans get 30 per cent of the trade with our colonies, and in edge tools there is no doubt they have some reason for it. They claim that it is due to the fact that they manufacture what their customers require in any country, and do not make one article for universal use, nor decline to alter it to suit different methods in different countries. They have a monopoly in South Africa for their adzes or claw hammers. In style and finish they are different to ours. An overwhelming majority of axes and hatchets are sent from the States compared with ours. On the other hand, it is admitted that most of the adzes used are of English make. November 1st, I went to Messrs. Plumb's, at Newtown, and was met by men on strike and taken to their room. The men explained that an order came for 200 pairs of tongs, special; these had previously been made day work, but the employers wanted them made piece-work, offering a price based upon what had been made daywork. A man made some for half a day, and complained he could not get a living at the price; could not get any more; had another try for half a day with same result; would not make any more at the price, and was discharged. Messrs. Plumb sent for another man and asked him to make them daywork (he happened to be an officer of the society), he declined to make them, got discharged, when the other men left; more than 150 of them out. I told the men who I was, and showed them my card, saying I would see them again; they showed me the work; they said they had good funds; had been out five weeks result, only small part of work on. Mr. Plumb, jun., asked me to stay to lunch, I thanked him, but went to a saloon. It was 12 o'clock dinner-time, when Mr. Plumb, jun., came in and invited me into the back room where lunch was; had some with him. When we came out the men who had brought me stood outside. He said, these are some of the men on strike; he showed me a handbill they had printed, asking men to keep away from the works, and admitted they had been partially successful; men could not get lodgings, so he had taken houses for them but they would not stay.

There is very little hammering done. The iron is made into various articles, hammers, hatchets, axes, adzes, picks, and various other edge tools, by means of machines, like presses, which perform four or five operations on one article. They are heated in furnaces by gas, coke, and oil. The platers do not sit down like they do over here. The hammers are fixed on a long beam that works like an oliver. There are many emery wheels and very large stones, the men not sitting down but standing at the face of the stone; others are on a raised platform almost on the top of the stone. They have a contrivance that they work with their foot that puts a pressure on the tool they are grinding, and does not require any great pressure on their part. The works are lofty and the men have plenty of room; they are heated with steam in cold weather, and ventilated in hot weather. Leading men get 12s. 6d. per day, that is about the maximum. The tools are well finished by a chemical process they do not care to disclose. They have a reputation as makers but apologised that I should see the

works only partially at work, would prefer me to have seen them in full swing. The employer had not objected to the society previously, but the men got the idea they could control the works, and he would not tolerate that. He had not had a dispute for 17 years, and admitted he was much inconvenienced. Mr. Plumb, jun., asked me if I could stay. I was anxious to go to a tube works, and told him so. He said a train would take me in twenty minutes, the car an hour. Train in five minutes; thanked Mr. Plumb, and went out of the works on to the train, so did not see the men again; should have liked to have done so, but could not under the circumstances.

Chain.—I ascertained there was a Chain Works at Lebanon; I went there and found it. I knew one of the workmen. Several Englishmen were working there. Two men from Cradley Heath were working the chain on the side weld. They were the only two in the shop who would work on the side welding. It is a large factory well ventilated, and open in summer time. They make from the smaller sizes up to $3\frac{5}{16}$. They work on the same methods as over here; they have no machinery for making chain. They test it in the factory.

Their prices are considerably higher than they are over here. I compared some of their prices with ours, and found a great difference in their favour; nothing would induce them to come back and work at the prices we are paying, though they talked of taking a trip over to England and changing a $200 bill. The managing superintendent, Mr. Attwood, was a Cradley Heath man, who had brought his wide and varied experience into the trade there, and was managing a successful undertaking. This was not the only case by many I met in which men of skill and ability had left the old country because they could get a better return for their labour than at home, and thus became our competitors. I met with men from other chain works, and their conditions and experiences were the same as above described. I should like to thank Mr. Attwood for his exceptional kindness towards me, and for his ready assistance in helping me to get through other works.

Files.—American files have a large sale in our own colonies, because they are manufactured to suit the requirements of their customers; in some colonies they are largely used; especially is this so in the saw files. The American files are lighter than the English ones; they are seldom recut by the colonials. Horse rasps are largely exported; they send showboards out displaying samples in an attractive manner, a procedure the English manufacturer has not yet thought of. They are mostly machine made, and the workers get good money.

Waterways.—One hears much just now of trusts and of their baneful influence on the trade of the country. In spite of that, one cannot help wishing after viewing their waterways that some trust or some combination could be found to improve the waterways of this country. When one sees to what extent they are utilised in America, and how largely they contribute to the general prosperity of the country, one almost despairs at the want of enterprise shown by the capitalists of this country. Fancy barges containing 300 tons of coal each being pushed up the rivers by a small tug for any distance up to 3,000 miles, supplying works or towns on the way. The grain from the interior is brought to the towns down the lakes, vast quantities of it being carried to the elevators which are built on the banks, and from which it is transferred to the railways and sent to the seaboard. Iron ores are also carried on the lakes that are mined at Lake Superior. Most of the ore is smelted in Illinois, Ohio, and Pennsylvania. It is carried in ships built specially to Cleveland (the largest distributing centre), and is then sent by rail to various iron-smelting districts. At the loading dock we saw them loading coal direct from the trucks. Having ascended an incline a considerable height above the vessel, the trucks were

emptied bodily into the hold of the ship. It is asserted that at some of the loading stations over 3,000 tons are loaded under the hour. The unloading at Cleveland is very expeditious. Large buckets are used. It is loaded by hand. It is then hoisted up and run a long distance and deposited when required, returning into the hold when empty. One machine working three buckets will empty 2,000 tons in eight hours.

Railways.—One of the most important factors in the prosperity of the States is its railway system. Passenger trains are much more comfortable than English; they are all corridor carriages, with smoke-rooms, lavatories for both sexes, and having platforms at each end of the carriage, where one can stand and view the country, or one can promenade from one end of the train to the other. The corridor is in the centre of the carriage, and not at the side, like the few we have got; they are wider than ours and higher. They have sleeping berths on those running long distances, and they are largely patronised; they are very comfortable. All our travelling was done in them, for we invariably travelled at night. Baggage to 150lbs. goes free; when registered, there is no need to trouble about it. But it is in the transport of minerals and other produce that their superiority is most marked. The old modern cars of 16 tons weight, which carried 16 tons, have been discarded, and now they have steel cars that are no heavier, but carry a load of 50 tons. The locomotives, too, have been revolutionised, and instead of the old 30-ton engine, which was able to take a load of 400 or 450 tons, they have now much more powerful ones (although they do not compare with ours in appearance). They are capable of taking 50 cars containing 2,500 tons. The freight charges have been reduced within the past few years from 22s. to 4s. per ton; this reduction has contributed in no small degree to the success of their export trade.

They have a population of	76,303,000.
Great Britain has	41,454,526.
They have miles of railroad.....	202,000.
Great Britain has	21,855.
They have miles of railroad for every 1,000 of population	26·47.
Great Britain has	5·27.

So that they have the greatest mileage in proportion to the population, the lowest cost of transportation, and at the same time they pay the highest average wage of any country in the world. They play an important part in the one thing that we trouble ourselves about, viz., the wheat we get from them. The New York Central have four tracks running the entire distance from Buffalo to Albany, a distance of 363 miles; it is not at all an unusual thing for one engine to haul 90,000 bushels of grain in one train, or it will take 125 empty cars. It is said that in the busy season 75 to 100 such trains pass over the Central alone. These facts speak volumes for the transport service.

Automatic Couplings.—We have had a commission of inquiry as to the advisability of having automatic couplings, and thus reducing the loss of life in shunting operations. Such couplings are in general use in the States; all the railways have to adopt them within a given period. There is no chain or screw on them; they are simplicity itself. It is made by a powerful bar on each end of the truck or carriage; on the end of one it is concave, and on the other convex. On the two cars coming together they lock themselves and cannot be separated without a small lever being raised at the end of the car. The men do not have to go between the cars for the purpose of coupling; it is unnecessary. One is astonished that they have not been adopted here long ago.

Trams.—Tram lines are much more in general use in the States than in England. There are a variety of systems overhead, cable, trolley, etc. But none of them are equal to the Lorrain contact system in work at Wolverhampton, for running steadily and without much noise. They are all well lighted, and in cold weather are heated. They run much longer distances than in this country. Some of them run 100 miles. It is almost the only means of travelling by the people in the towns, for one sees no cabs and but very few cars. All classes seem to use them. There is no such thing as overcrowding; you can hang on anywhere without let or hindrance. Drivers and conductors get 1s. per hour.

Electricity.—Electricity is largely used, not only for lighting purposes—every town appears to have adopted it for that—but for manufacturing purposes. All the works that we visited used it more or less. It was mostly seen in the machinery part of the works, and there were signs everywhere of its further extension. It will undoubtedly play an important part as the motive power in the near future, more especially as it can run one or more machines when only a few are required to work, without running the whole of the machinery in the works.

The visits to the shipyards, steel, electric, and other works were interesting in every way, but will be reported upon by those specially interested in those trades.

Points of Difference.—There are many points of difference between us and them. One that strikes us forcibly is the absence of class distinctions such as exist in this country; this is most pronounced in the relationship of employers and employés. A man is not looked upon as part of the machinery of the firm, or as one who ought to be thankful for having employment found him. But, on the contrary, he is looked upon as a member of the firm and is often taken into confidence, is rewarded for any suggested improvement in the methods, and if it is adopted, his wages are not reduced because it has enabled him to get more work done; a result that invariably follows in this country. He earns better wages, but works longer hours; generally 60 hours per week. He only has one day's holiday, no matter which it is. He is not permitted to lose time, or he is heavily fined for it. There is not so much horse-racing as here, and, so far as one could see, but little gambling, except at some clubs one could read about at times.

There is but little football played, and no time is lost in going to see it, a thing we should do well to copy. Rents are much higher, but the higher wages more than counterbalance that, Clothing is somewhat dearer. Fruit is cheaper. Beers and liquors are dearer, but my experience was that they do not take so much of them, nor take them to excess. There is an entire absence of noise or rowdiness on Saturday nights.

The patent laws are more beneficial to the ingenious workman, for he can register his design for £3. 1s. 6d., and can get a patent complete for £7. 4s. We were informed by the chief of the Patent Office that they get 1,000 per week, chiefly from workmen, who are thus enabled to secure the patent for themselves instead of taking it to someone with money and letting them have it for an old song, as we do here. This is a direct incentive to workmen to put into shape any new ideas they may have, knowing that they themselves will benefit by their ingenuity. We met several men in various works who were receiving benefits for the alterations they had made in the method of working, and some had been promoted as well. I am satisfied that the cheap patent laws are of great value to the whole community in encouraging new ideas.

The Government has large printing works at Washington. They print all returns and books ordered by Congress. No works are sold; all are for gratuitous distribution. They deal with

every phase of agriculture and many phases of labour; any new discovery is soon laid hold of and made public. They are text books for all interested in them. Any member of Congress can obtain them for distribution. This is an example we may well follow; its influence must be far reaching. This is only one of the many considerations the authorities show towards the working class section of the community.

The Friendly Society movement is strong, but consists of a large number of local organisations rather than large affiliated orders. Still, it is an indication of thrift that one cannot see too much of. Many of them have places used almost exclusively by themselves, others meet at a variety of places. Freemasonry is very strong. Here, again, social distinctions are ignored. The Order is not so exclusive as here.

Education.—Their schools are well equipped and well attended; and although there are no school boards, nor any control over the schools by any local elected body, they are kept in a state of efficiency by those appointed by the Education Board at Washington. Compulsory powers are conferred upon them, and children absenting themselves from school repeatedly are taken from the control of their parents, it being considered little less than a crime to bring up a child in ignorance. The age at which children leave school is 14, but very many of them continue longer. We hear nothing of those foolish exclamations so prevalent here, that the longer they attend school the less they will be inclined to work. They will use their intelligence in making the work lighter probably by some mechanical means, and thus hustle along. They are encouraged to attend evening schools after they have started to work, and they largely avail themselves of the opportunities afforded. They laugh at our Education Bill, and twit us with caring more for dogmatic teaching than the intelligence of the children. The religious difficulty is unknown in connection with the education of the young; one has yet to learn in spite of this that they are less Christians than we are.

As to how America is able to pay higher wages and yet successfully compete with us in the markets of the world—I believe it is due to the vast natural resources she has in mines and minerals, improved methods of mining, the utilisation of her vast waterways, and the superior railways she possesses, combined with the low rates charged for transportation of all kinds of products. Manufacturers are helped by these considerations, to which must be added the more modern and ever-changing machinery, the adoption of every improvement, no matter how often they are introduced, and their safety from foreign competition in consequence of their protective tariff. The fact that the American workman has better opportunities for his education, both elementary and secondary, give him an advantage, the relations between employers and employed which are excellent, the substantial reward they get for any suggested improvements (and not snubbed as they most likely would be here), the greater regularity of employment found for the men, the more healthy workshops and the opportunities provided for workpeople for their cleanliness—all these considerations influence the workmen and cause him to be persevering and attentive to his work and scarcely ever absent from it when there is work for him to do. These facts in my opinion are reasons why they are making such gigantic strides over us. It will be well if English employers and workmen will investigate this matter with more leisure than we have had, and read, mark, learn, and inwardly digest the facts as they find them.

Answers to Questions, by Mr. T. JONES.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Yes.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. Compulsory attendance more stringently enforced.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. The great advantages, shown by means of lectures and literature.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Ten in America, nine here.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. No comparison. They work under different methods.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Not to the same extent as in England.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. Gives no unfair advantage to either.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. Not sufficient information to give an opinion.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. No opportunities of ascertaining.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. They do not decrease wages on larger output.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. I think so.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes.

Questions.	*Answers.*
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) Yes, in some works. (*b*) Employer gets advantage.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. Foremen appeared as numerous as here.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16, 17. It requires more than occasional acquaintance, and longer observation to answer these.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	
18. Are the American employers more accessible to their men than English employers?	18. Yes.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes. (*b*) More trained men employed. (*c*) No.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) and (*b*) It is due to both causes, but chiefly to improved machinery.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Very many.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) No. (*b*) No appreciable difference.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Yes. (*b*) Dearer, if equal quality.

Questions.	*Answers.*
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) Could only judge by exterior. (*b*) Very much higher. (*c*) I think so. Greater facilities are given to acquire them.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. It is higher.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. The American has the advantage.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. I believe he does.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No.
32. Is the American working man more sober?	32. Yes.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I have no information.
34. Is it true that the American workman is thrown out of work at an early age?	34. I have no reliable data.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. No opportunity to ascertain.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. Smaller.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. They are helped; cannot say to what extent. These matters are not published or talked about.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. Yes; in many respects.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. I know nothing of it except hearsay.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40, 41. Could not sign in favour of it until I know more about it.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	

T. JONES.

Mosely Industrial Commission.

Report by Mr. THOMAS ASHTON, of the Operative Cotton Spinners.

In giving a brief report of my visit to a part of the United States, for the purpose of investigating the industrial methods which obtain in the industrial centres which I visited, as well as replying to the many questions about which I was desired to obtain information, I wish to say in the first place how deeply grateful I feel to Mr. Mosely for the opportunity given me to visit America, and to all friends I met in the States who so kindly assisted to make my visit a pleasant and agreeable one, and who even put themselves to much inconvenience to help me in my work of inquiry in the manufacturing districts of the New England States.

During the short time I was in America I had interviews with numerous trade union officials, and addressed many meetings of trade union members and delegates. By such means I was enabled to give and receive much information relating to labour questions, as they affect the workers in the two countries. It is said that about 80 per cent of the American workmen are unorganised, but the trade union members and their leaders are very anxious to learn all they can about the English trade union methods. There can be no doubt but what the spirit of trade-unionism is rapidly spreading amongst the American workmen, as they can plainly see it is only in that way that they will be able to hold their ground in labour conflicts, and to have a voice in determining the conditions which ought to prevail between them and their employers in matters relating to work and wages. Whilst attending a Convention in the City of Boston, composed of trade union delegates, I was supplied with a list of wages which are paid to workmen employed in the industries referred to.

Plumbers are paid.....	$4·00	per day of 8 hours, or	£5	0	0	per week of 48 hours.		
Carpenters and Joiners	2·80	,, ,,	3	10	0	,,	,,	
Lathers	3·60	,, ,,	4	10	0	,,		
Bricklayers.....	4·50	,, ,,	5	12	6	,,		
Stonecutters	3·50	,, ,,	4	7	6	,,	,,	
Plasterers	4·00	,, ,,	5	0	0	,,	,,	
Plasterers' Labourers..	2·75	,, ,,	3	8	9	,,	,,	
Steam Fitters.....	3·75	,, ,,	4	13	9	,,	,,	
Electricians	3·00	,, ,,	3	15	0	,,	,,	
Roofers	3·00	,, ,,	3	15	0	,,	,,	
Boiler Makers.....	3·25	,, ,,	4	1	3	,,	,,	
Decorators	3·00	,, ,,	3	15	0	,,	,,	
Bricklayers' Labourers	2·75	,, ,,	3	8	9	,,	,,	
Marble Cutters	3·50	,, ,,	4	7	6	,,	,,	
Pipe Coverers.....	3·00	,, ,,	3	15	0	,,	,,	
Sheet Metal Workers	2·75	,, ,,	3	8	9	,,	,,	
Tile Lathers	3·25	,, ,,	4	1	3	,,	,,	
Hard Wood Finishers	2·75	,, ,,	3	8	9	,,	,,	
Stairs Builders	3·25	,, ,,	4	1	3	,,	,,	
Blacksmiths	2·75	,, ,,	3	8	9	,,	,,	
Painters (Inside Work)	2·75	(1st class men)	3	8	9	,,	,,	
Do. (Outside Work)	2·50	(2nd class men)	3	2	6	,,	,,	

Engineers, fitters, and turners receive $14·00 per week in the city, and $12·00 outside the city, or 58s. 4d. and 50s., for a working week of 56 to 57 hours. Builders' labourers are paid $14·00, or 58s. 4d., for a working week of 48 hours. Lathers are paid 4s. 2d. per hour for overtime working. I was told that unskilled workers, who are well organised, are paid better wages than skilled workmen, who are badly organised. In all the principal industrial centres which I visited, unskilled workers were fairly well organised; in fact, unskilled workers appear to receive more favourable consideration from their employers throughout the United States than is the case in England, so far as receiving better wages for their labour, all other conditions being duly considered. In the City of New York, wages in the various employments are generally higher than those paid in other parts of the country, and the working hours are from 44 per week and upwards, but the former number mostly prevails.

Mr. Wilkinson and myself arrived in Fall River on November 17th, 1902, and we lost no time in putting ourselves in communication with the officials of the various trade unions connected with the cotton industry. I ascertained the following particulars. There are 550 members of the Mule Spinners' Association, being 100 per cent of those employed. No mule spinner can obtain a situation without being a member of the society. There are 3,500 weavers, or 40 per cent of the number employed, who are members of the Weavers' Trade Union, and the reason given for so many weavers being non-members of the society is the great difficulty experienced in dealing with the different nationalities—which include Poles, Germans, Italians, Portuguese, Hebrews, French-Canadians, English, Irish, Swedes, Russians, Armenians, and born Americans. The Cardroom Association officials have the same difficulty as the weavers in organising the workers in their department of labour. Their present membership is 1,250, or about 40 per cent of the number employed in the mills in Fall River; 150 slashers, or 98 per cent of the number employed, are members of the union, and 600 loom fixers, or 80 per cent of those employed, are members of their trade union. The Twisters' Society has only been recently formed; there are not more than 40 in the city, and 30 are members of the union, being men, and employed on fine work. The drawers-in are all young women, of different nationalities, and therefore not organised. The different societies connected with the cotton spinning and manufacturing industries are united in one association, which is known as the "United Textile Workers' Association of America," and this body is also connected with the American Federation of Labour; and, notwithstanding the drawbacks before alluded to, the trade unions named exercise a powerful influence in the labour interests, as well as in the governing Councils of the State and in the management of local affairs. Whilst I was in New York I visited the offices of the Civic Federation, and I was there shown a book containing the evidence given before an Industrial Commission in 1901, by a committee composed of representatives from the different branches of cotton mill workers in Fall River. This committee submitted the following list of wages as being a fair average of what were being earned by the class of mill workers named. I have added the last 10 per cent advance to the list of wages given by the committee, so as to bring the wages up to the present standard:—

	s.	d.	
Men unloading cotton from the boats	0	11	per hour.
Foremen attending to the unloading of cotton from the boats	41	3	per week.
Under foreman	34	6	,,
Engine head tenters (males)	34	4	,,
Strippers in cardrooms (males)	34	4	,,
Grinders in cardrooms	48	1	,,
Slubbing tenters (males and females)	41	3	,,

	s.	d.	
Ropers for coarse spinning (females)	36	8	per week
Roving frame tenters (females)	36	8	,,
Doffers (females)	36	8	,,
Sweepers (females)	36	8	,,
Overseers in cardrooms	82	6	,,
Second hands in cardrooms	50	5	,,
Loom fixers (overlookers)	55	0	,,
Ring-frame spinners (males and females)	36	8	,,
Mule spinners (males)	64	6	,,
Back-boys and doffers	23	0	,,
Winders and spoolers (females)	25	6	,,
Female warpers	39	0	,,
Slashers (females)	48	0	,,
Size makers (males)	34	6	,,
Drawers in (females)	31	0	,,
Weavers (males)	39	9	,,
Truckmen	30	6	,,
Oilers, scrubbers, and odd men generally	25	6	,,

English cotton mill workers in the departments referred to can compare the wages here given with those they are earning at the mills where they are now employed, and form their own conclusions therefrom. The modern mills in Fall River and New Bedford are well arranged for meeting the requirements of sanitation and ventilation, and the old mills are being gradually improved in this direction. There is a State Inspector for buildings of a large character, and all the plans for new buildings have to be passed by him, and I was assured that he looks well after all the requirements necessary for the health of the workers, and to the ways and means for their egress in case of fires or other emergencies. The machinery in the cotton mills is chiefly of English make, by the following firms:—Messrs. Parr, Curtis, Threlfall, Dobson and Barlow, Asa Lees and Co. Limited, Platt Bros. and Co. Limited, and J. Hetherington and Sons Limited. American-made machinery is also in use—including Mason's spinning mules—and some of this machinery is doing good work, and giving satisfaction to the overseers. None of Platt's modern spinning mules are working in Fall River, and Threlfall's mules are said to be the best for the spinning of fine counts. The system of working in the spinning and carding departments of the American mills is much different from what obtains in the English mills, and my opinion is that the advantage is on the side of the English system, both in respect to the cost and the quality of production—all other things being equal. The spinning mules are generally worked with one spinner to one pair of mules, and one back-boy to two and up to five mules, according to their length and the counts they spin. The back-boys attend to the creeling and sweeping, and assist in cleaning the mules; their wages are paid by the spinners. There are doffers employed in the spinning rooms as well as starters-up in some of the mills to assist the spinners to get the mules in working order after the mules have been doffed. There are two doffers and one starter-up employed for seven to ten pairs of mules, in accordance with the length of the mules working and the counts they produce. There are also tubers employed, and they tube by hand; and two of these tubers follow the doffers in their work. All the yarn is spun on tubes, and the employers pay the wages of all the help, with the exception of the back-boys. In all cases the rovings are taken to the spinning mules, and they are put on the creels by a man who is employed for that purpose. The elevator man takes the rovings up to each room from the card-room, and the same two men take away the empty bobbins from the spinning rooms to the card-

room. The weft is taken from the spinning room by the doffers to a place where it is weighed, and the elevator man then takes it down the hoist. The overseer in the spinning department attends to the wrapping of the cops and the weighing of the yarn, and has full management in the spinning rooms, with power to discharge any person employed therein. There are also assistant overseers, termed second and third hands, who have to piece straps and bands and keep the mules in working condition, as well as make out all changes for the various counts of yarn produced.

Spinners in American mills are principally paid by piecework rates, and the latter are set forth in a list of prices known as the "Fall River Standard List of Prices for Mule Spinning"; to a certain extent the mule spinners in New Bedford are governed by a list made out on the same lines. In many instances I found that the spinners were paid standing wages, and when I inquired the reason for this, I was told it was because the standard list did not provide for the counts of yarn being spun. The Fall River list of prices only relates to 18's weft counts up to 50's counts, and the twist list from 22's to 37's counts, so that any counts of yarn higher than the numbers stated have to be specially agreed to, which generally ends in paying standard wages. The list of prices for spinning in New Bedford provides for counts 9's weft up to 120's counts, and all counts of yarn above the latter number have to be arranged for on some such plan as is adopted in Fall River. As far as I could ascertain, both from the trade union officials and from spinning overseers, there is no person connected with the industry who knows anything about the principle on which the list prices have been based; hence the difficulty which is experienced in extending the scale of prices to meet the finer counts of yarn which are now being produced in the New England States. The same piecework rates are paid for spinning, whether the mules be new ones or old ones, and whether the mules run quick speeds or slow speeds; in fact, the spinning overseers can put what twist they think necessary in the yarn without altering the price paid for spinning. An attempt was made a few years ago to induce the corporations to pay by the turns per inch, but they refused to adopt such a course of payment. The spinners are paid by the weight of yarn spun, and they have the privilege of seeing their yarn sized, or weighed, at any time they require, and I was informed there was now very little trouble about the wrapping of their cops, as there was a strong feeling amongst the overseers to do right to both sides. In case of disputes about general advances or reductions in wages, the various branches of mill operatives work together, but this is not the case in individual disputes, in consequence of the operatives being badly organised, except in the spinning branch. Wages are now 10 per cent higher than they have been during the past 20 years. There are quite a number of Inspectors for the State of Massachusetts, including two female inspectors, and I was informed by the mill workers' representatives that the Factory Laws were fairly well carried out, except in the case of the "Particulars Clause"; in regard to this matter, complaint was made that is was not enforced as it ought to be in the interests of the female workers in cotton mills, and much dissatisfaction prevails amongst the weavers because a margin of 5 per cent is allowed to the manufacturers in the length of the cuts, their contention being that they ought to be paid for the number of yards of cloth they weave. No doubt something will be done in the way of rectifying this grievance. There is a Boiler Inspector for the State, and amongst his duties is that of examining engineers and stokers, as they are not allowed to be employed unless they can produce a certificate of fitness, and I was told that the examination they have to pass is a stiff one. Mule spinning in Fall River is not carried on so extensively as was the case some years ago, but there has been a great increase in the number of looms and ring-frame spindles, and finer counts of yarn are now produced than in former years.

The population of Fall River City is now 110,000, and that of the United States from 77,000,000 to 78,000,000; 48 per cent of the population were born in other countries than America. As this vast number of persons have to be mostly clothed with the products from the spindles and looms at work in America, the home markets give a great advantage to the American manufacturers, which enables them to pay high wages to their workpeople. I questioned the latter as to the class of material they are generally supplied with to work up into yarns and cloth, and as to whether they were ever troubled with grievances respecting bad work, such as was the case with Lancashire mill workers, and I was told that such cases were far from being frequent, and that the work was never such that the mules were required to be stopped for the purpose of piecing up the broken ends. During the months of July and August, when the wind blows mostly from the south, the spinning is much affected for the worse, and the operatives describe these as the "dog days," as the winds take the twist out of the yarn, and they suffer more or less from the effects of the sticky nature of the atmosphere, which causes the leather rollers to get damp, and extra turns are put in the yarn, so that spinners earn less wages and have to work harder during these troublesome times. The superintendents say that they use a better quality of cotton when the dry winds make their appearance, but the workpeople won't admit this to be true, and as a rule the machinery is reduced in speed, and by this means they manage to tide over the difficulty which the dry winds create. Both the mill hands and their trade union officials declare that the climatic influences, together with the strain of working to which they were subjected in the mills, are more injurious to health than is the case with the Lancashire operatives. Every mill has a certain amount of help looking for work, and ready to take the places of those who get leave of absence on account of not feeling well enough to keep up with their work, and this system applies to all kinds of labour in cotton mills. In a mill with 30 spinners, there will be an average of 5 to 6 spinners attending every morning asking for work, and they are put to work sick in their turns; some weeks they will all be fully employed as sick spinners. So long as a mill worker obtains leave of absence, he or she can remain away from work till they are ready to return to their employment, and no advantage is taken of workpeople who leave their employment under the circumstances referred to; they are never refused leave when they apply for it, so that those of the operatives with sufficient money can have plenty of holidays when they feel they require them. I was informed that the mortality amongst the cotton mill workers in the States was greater than it is amongst cotton mill workers in Lancashire, and my observations in the mills I visited led me to think there is plenty of truth in this statement. The operatives are pale and sallow looking, and the pressure to which they have to submit in the heated rooms is certainly more trying to human endurance and health than most people have any real conception of. The mill hands commence work at 6-30 a.m., and work up to 12 o'clock noon; they are allowed 60 minutes for dinner, and then they work up to 6 o'clock in the evening, and on Saturdays they work up to 12 o'clock, and leave the mills at that time till Monday morning following.

In respect to my inquiries about the system of cribbing time by the American mills, I was informed that, taken as a whole, the 58 hours working week was fairly acted up to, The mule spinners are strongly opposed to working more time than the required 58 hours limit, and one of their number in each mill is said to watch the clock and to start and stop his mules at the proper time, and his action is a signal for the others to follow; no advantage is taken of the spinners keeping their mules stopped during the time there may be any time-cribbing going on. In many parts of the country where cotton spinning and manufacturing is carried on, I was told that time cribbing was practised, especially in the outlying districts, where visits from inspectors are said to be rare. There are six holidays observed in Fall River and New Bedford

each year, and they are each of one day's duration only, but there is a movement on foot for a week's general holiday about the middle of the year, and if this be conceded, they will be slightly ahead of the Lancashire operatives in the matter of holidays.

In answer to inquiry, I was informed that the oiling and cleaning of the machinery in the spinning rooms are performed at any time when an opportunity presents itself. Mule spinners have to oil their spindles and headstocks every morning before starting time, and the same at dinner time, and they are required to oil the spindle bottoms every morning. There is very little oiling or cleaning done during the engine hours, and there is no specified time allowed for cleaning during the week. Spinners have to scour one half of one mule each week, and they are assisted in this work by the back boys—the doffers and starters-up (where the latter are employed), and the scouring is done in about twenty minutes. The steel rollers are never taken out during scouring. The men who are employed to take the rovings to the spinning mules and to put them on the creels, are paid an average wage of 31s. and 25s. per week respectively. Joiner spinners are generally employed on what are termed the long mules, as the feeling amongst those who manage the mills is "that there is too much of a difference in the wages of spinners and big piecers." No extra price is paid to the spinners for using tubes. There are no under-minders employed in the American mills, and where they are employed in Lancashire mills the practice is very unpopular with the spinners, as they consider it nothing less than sweating, on account of having work done at less than standard prices and wages. In New Bedford there are 440 pairs of spinning mules, and 40 more pairs will shortly be added to the number. There are 60 joiner-spinners, and both spinners and joiner-spinners are members of the Association, as the membership of the Union is 500, and from 200 to 300 doffers and back-boys are members of the Union as well. There are 5,000 weavers employed in the various mills in the city, but only 1,350 are members of the Association, being 27 per cent of those employed. The cardroom workers claim 80 per cent of members of the speed tenters, but only five per cent of the rest, and the membership of the Society is 400, whilst the number employed in the mills is about 2,000. There are about 450 loom-fixers, and 250 of this number are members of the Union; 100 slasher tenders are employed in the city, and 80 are members of the Union. There is no organisation amongst the twisters and drawers. I ascertained that the system of employment in the preparatory departments of the American cotton mills is somewhat different from what obtains in the English mills, but taking the cost in wages with other results, I am assured by representatives of Lancashire Cardroom Operatives' Associations, to whom I have read the details which I obtained relating to this branch of the cotton trade, that there is no advantage in the American methods of working, over the system which prevails in the Lancashire mills. There is one pleasing feature about the system of working the American cotton mills, and that is, the superintendents believe in using a good class of cotton, and by this means they are enabled to run their machinery at quick speeds, and get out very excellent results. They also act on the principle of having their material well carded and cleaned, and they provide the requisite machines for securing such a result, and by adopting this policy they produce good yarns, and avoid making a deal of waste. One of the leading mill superintendents in New Bedford informed me that they made a practice of using three grades better cotton than was used in Lancashire, for the spinning of the same counts of yarn, and this statement was confirmed by an experienced cotton buyer and seller, with whom I had a long conversation about the American cotton industry generally. In going through the mills I was privileged to visit, I had no difficulty in satisfying myself that the most was being made out of every machine used, and that, with the class of cotton in use, the mill operatives were not being hurried in their work any more, if as much, as they are in the Lancashire mills, where a lower class of material is generally used. I

frequently saw mill-workers sitting down and watching their machines at full work, everything going on all right, and were it not for the fact that the rooms are too warm, the position of the mill-workers would be fairly satisfactory. At a mill which I visited, the spinning mules contained 736 spindles per mule, producing various numbers of yarns, and the following were the pounds weight of yarn spun per week, together with the average hanks of yarn per spindle :—

			Hanks per spindle per week.	
68's	counts, weft	= 516lbs.	23·8	American cotton, carded.
58's	,, ,,	= 780 ,,	30·7	White Egyptian cotton and combed.
48's	,, ,,	= 946 ,,	30·8	American cotton, carded.
92's	,, ,,	= 375 ,,	23·4	White Egyptian cotton, carded.
75's	,, ,,	= 515 ,,	26·2	American cotton, carded.
100's	, ,,	= 318 ,,	21·6	White Egyptian cotton, combed.
110's	,, ,,	= 299 ,,	22·3	Sea Island Egyptian cotton, mixed.
120's	,, ,,	= 262 ,,	21·3	Sea Island Egyptian cotton, mixed.
150's	,, ,,	= 165 ,,	16·8	Sea Island cotton, combed.

For 37 pairs of mules at this mill there are a spinning overseer and four second hands, and their total wages amount to £17. 19s. 3d. per week, thus showing that the spinners have plenty of assistance ready to be called in in case of breakdowns, or other work required to be done by the kind of help referred to. Spinners earn £3. 15s. per week, as against £1. 12s. in Oldham on mules of a similar length. The total wages which would be paid for an overlooker and assistant in Oldham on a similar number of pairs of mules would be less than £6 per week. At another mill I found the spinning mules contained 1,120 spindles per mule, being equal to 93⅓ dozens long, and spinning 95's pin cops with a 60 inch draw and 3 inches of roller motion, and the mules were running 3 draws in 55 seconds, and producing 600lbs. or 25·4 hanks per spindle per week. The wages paid on one pair of mules were £6. 19s. 6d. per week, as against £3. 7s. in Oldham under the same conditions. On a similar length of mules, and spinning 150's weft counts from Sea Island cotton, combed, the mules were running 3 draws in 59 seconds, and spinning from a 22-hank roving, and producing 340lbs. per week, or 22·8 hanks per spindle. The spinner was earning £4. 7s. 6d. per week, as against £1. 17s. in Oldham if employed under similar conditions, and paid by the Oldham list and conditions. At another mill which I visited, the mules contained 816 spindles each, or 68 dozens long, and they were spinning 135's counts with a 57½ inch draw and 3½ inches of roller motion, and running 3 draws in 63 seconds, and producing 238lbs. of yarn per week, or 19·7 hanks per spindle. The rovings were 22-hank, and made from Allan seed cotton with a staple of 1 7/16 inches long. The spinners were paid standing wages of £4. 0s. 8d. per week, and the total wages paid on one pair of mules was £5. 5s. 10d., and on similar conditions in an Oldham mill the wages would be £2. 17s. 10d.

				lbs.	Hanks per spindle.
The weekly production per pair of mules spinning			60's counts was	880	or 32·4
,,	,,	,,	95's ,,	410	,, 23·9
,,	,,	,,	100's ,,	420	,, 25·7

The latter counts are produced from a better class of material than the 95's counts, hence the mules run quicker, and more weight is turned off the mules. I went through another mill, and was told that the spindles on the spinning mules were running at the rate of 9,000 revolutions per minute, which is not equal to the speed in the modern mills in Oldham. The mules contained 840 spindles per mule, or 70 dozens long, and the following are the results of the production per week in pounds, and hanks per spindle :—

55's	counts, producing	930lbs.,	or	30·4	hanks	per spindle.
70's	,,	680	,,	28·3	,,	
78's	,,	600	,,	27·9	,,	
100's	,,	420	,,	25·0	,,	
90's	,,	480	,,	25·7	,,	
95's	,,	450	,,	25·4	,,	
110's	,,	380	,,	25·0	,,	
84's	,,	520	,,	26·0	,,	

The cotton used is Egyptian, combed American, and carded American, all of long staple. The total wages paid on one pair of mules was £5. 1s. 10d., as against £2. 18s. in Oldham.

I visited a mill in which some of the spinning mules had been made by Messrs. Asa Lees and Co. Limited, of Oldham, and I took the particulars of one pair containing 1,044 spindles per mule, or 87 dozens long. These mules were spinning 50's pin cops, with a 60 inch draw, and 3 inches of roller motion, and were running three stretches in 43½ seconds, and the rovings were made from Egyptian cotton, and double rovings with a 10-hank roving and producing 1,070 lbs. per week, or 25·6 hanks per spindle. The overseer told me he was about to speed up these mules by 10 per cent. The mules were being worked with joiner-spinners and they were each paid 50s. a week, and with the wages which were paid to the back-boys and doffers, the sum of £6. 16s. 10d. was paid for the work produced by one pair of mules. The wages which would have to be paid in Oldham on such a length of mule, as per the Oldham list, are £3. 8s. per week. At a mill I visited in Pawtucket I found some American-made spinning mules at work; they contained 744 spindles per mule, or 62 dozens, and they were producing 75's pin cops, with a 60-inch draw, and running 3 draws in 46 seconds. The yarn was being made from double rovings, Egyptian cotton, and from 14 hank roving, and the weight produced per week was 520lbs., or 26·2 hanks per spindle. On these short mules, the spinner earned £3. 8s. per week, and including the wages paid to the back-boy and the doffers, £4. 10s. 10d. was paid for the work referred to, while the Oldham list would only give £2. 13s. 10d., being a difference of 37s. per week. In the same mill, on a pair of mules containing 824 spindles per mule, or 68⅔ dozens, spinning 80's pin cops with a 60-inch draw, and 3 inches of roller motion, with the mules running 3 draws in 49 seconds, the weight produced was 590 lbs. per week, or 28·6 hanks per spindle, the material used being brown Egyptian cotton with double rovings, and the spinners' weekly wages average £4. 3s. 4d., as against £1. 13s. 4d., which would have to be paid in the Oldham district. I was taken through a well-known mill in America, where some mules were working made by an American firm (Mason). The mules were 66⅔ dozens long, or 800 spindles per mule; 45's weft counts were being spun, and the stretch was 64 inches, with 3½ inches of roller motion, giving 67½ inches of yarn per draw. The mules were running 3 draws in 45 seconds and producing 1,100lbs. per week, or 31 hanks per spindle. The spinner was earning £3. 17s. per week, while 33s. per week was paid to the back-boy and the doffers, making a total of £5. 10s. in wages, while the wages to be paid by an Oldham employer for the same length of mules would be £3. 0s. 5d. per week, or a difference of £2. 9s. 7d. On the same number of spindles, and spinning 75's counts, the minder was producing 610lbs. of yarn per week, or 28·6 hanks per spindle. The material was American cotton, double rovings, and 13 hank roving. The overseer stated that the spindles were running 10,400 indicated revolutions per minute, and the spinner was earning £4. 3s. 4d. per week, or £2. 9s. 1d. more than he could earn if working in Oldham, and paid as per the Oldham list and conditions. At this mill there are 155 carding engines, and for counts 28's up to 40's weft, they turn out 800lbs. per engine per week, and for 80's

counts up to 120's counts, they turn out 340lbs. per engine. It will be seen that for 58 hours' working per week, these cards are not being required to do more work than will make good carding.

The grinders' wages average	£2	1	8	per week.
,, strippers' ,, ,, ...	1	11	3	,,
,, roving tenters' wages average	1	13	4	,,
,, slubbing tenters' wages (on medium and coarse)	2	10	0	,,
,, intermediate tenters' wages average	2	3	9	,,
,, drawing frame tenters	1	5	0	,,

In the numerous mills which I visited in different States, I found the customs, or methods of work, varied to a considerable extent, the management of each mill arranging the system of working in the different departments in accordance with what experience had shown requisite for securing the best results in the circumstances by which they were surrounded.

The increase of ring-spinning spindles in America has made great progress for many years back, and it is with the aid of the ring frame that the American manufacturing has made the headway it has in the production of cloth for the home markets, and is now becoming a great competitor in foreign markets. A ring-frame overseer informed me that they made a practice of putting more turns in the warp yarn than was the case in the Lancashire mills, and this, with good filling yarns, enabled them to run their looms to the best advantage to themselves. In one mill I visited, I ascertained there were nearly 76,000 ring spindles at work, the frames containing 80 to 120 spindles per side, and that a girl attended to nine sides on the long frames, and 12 sides on the short frames, their average wages being £1. 13s. 4d. per week. The ring-frame doffers earned £1. 5s. per week on the average. The average weekly production was 0·42 lbs. per spindle on 60's counts. The weekly wages paid to the overseer and his three assistants, for looking after the ring frames, was £16. 11s. 3d.

At another mill there were 36,500 ring spindles at work, producing warp and filling yarns. Some of these ring-frame spinners attended to 1,040 spindles each, others attended to 832 spindles, some looked after 1,200 spindles, and a few of the girls attended to 1,248 spindles each. These frames produced warp yarn, and the tenters were paid by piecework rates, at 11·43 cents per spindle. On frames producing filling yarns some of the girls attended to six sides of 144 spindles each; some attended to seven sides, with 128 spindles each; and others attended to eight sides, with 120 spindles each. The piecework price for filling yarns was 14·28 cents per spindle. Therefore, the number of spindles attended to by each spinner multiplied by the price named will give the weekly wages of the ring spinners; some of them earn £2. 17s. per week. There are four doffers for 40 frames on weft yarn, and they each earn 30s. 1d. per week, and six doffers are employed on 130 frames producing warp yarns. Two of them earn 34s. each, and four earn 30s. 1d. per week. There are also four sweepers-up, and their wages are 15s. 2d. each per week. There are four persons employed to do miscellaneous work; two of them are paid 37s. 4d. each, and two are paid 30s. 10d. each. There are two roping boys employed at 20s. 3d. each per week. A $4\frac{1}{2}$ hank roving is used for 36's to 42's counts, and for 48's counts the roving is a $5\frac{1}{2}$ hank. The material used is American cotton with $1\frac{1}{8}$ inch staple. The speed of the spindles on the warp frames is 9,000 revolutions per minute, and on the filling frames from 7,300 to 8,000 per minute. The revolutions varied according to the variation in the speed of the front rollers. Another mill with 53,504 ring spindles had 209 frames, with 256 spindles in each, and the girls were running from eight to ten sides, according to their ability. Their weekly wages ranged from 25s. and upwards. On 40's counts the average production was 1lb. per spindle, and the overseer said this was better than the average production in the district.

The wages paid to the overseer and two second hands, and three other assistants, totalled up to £18. 2s. 6d. per week. At a mill with 24,600 spindles, the number of which will be shortly doubled, the frames contained 112 spindles per side, and the girls attended to 12 or 13 sides. They are paid by piecework rates of 72·69 cents per side, so that on 12 sides the wages average 35s. 7d. each per week. There are three doffers for 110 frames, and their wages are 33s. 4d. per week each. The doffers are young men.

The weekly production per spindle was ·389lb. on 70's counts.
,, ,, ,, ·498 ,, ,, 60's ,,
,, ,, ,, ·259 ,, ,, 80's ,,
,, ,, ,, ·199 ,, ,,100's ,,

At a mill containing 135,432 ring spindles, I was told that the girls attended to 10 sides of 128 spindles each, or a total to each ring spinner of 1,280 spindles. They were paid piecework rates of ·0065 of a cent per spindle, therefore, 1,280 spindles multiplied by ·0065 will give eight dollars and 32 cents, or 34s. 8d. per week to each ring spinner. At a mill in Rhode Island, where the ring spindles were running at the rate of 9,400 revolutions per minute, the ring spinners average 30s. per week, and the weekly production was as follows:—

On 50's counts, production=·58lb. per spindle.
,, 45's ,, ,, =·70 ,, ,,
,, 36's ,, ,, =·90 ,, ,,
,, 60's ,, ,, =·50 ,, ,,

There were eight doffers for 78 frames, and their wages were 22s. 1d. each.

At a mill containing 44,000 ring spindles, the frames contained 152 spindles per side, and the ring-frame tenters looked after eight sides, and they were paid one dollar per side, therefore their wages were 33s. 4d. each per week. The spindles made 10,000 revolutions per minute. The doffers were paid 21s. 8d. each per week. The weekly production given to me by the overseer was as under:—

1·35lb. per spindle for 30's counts.
1·12 ,, ,, 36's ,,
·96 ,, ,, 40's ,,
·80 ,. ,, 46's ,,
·67 ,, ,, 50's ,,
·59 ,, ,, 55's ,,
·51 ,, ,, 60's ,,
·42 ,, ,, 70's ,,
·34 ,, ,, 80's ,,

The details which I have given for mule spinning and ring spinning are for the purpose of enabling employers, managers, and workpeople to form their own deductions. In the cotton mills of the Northern States, large numbers of mill workers are to be found who formerly worked in Lancashire mills, and both as overseers in various departments, and as ordinary mill operatives, their experience and technical skill in cotton mill matters are being successfully used to their own advantage, and to that of the corporations which employ them. In my opinion there is only one drawback to America becoming a keen competitor with Lancashire in the exports of yarn, and that is the cost of production; wages and prices of commodities connected with the cotton spinning industry are so high as to act as a serious check to the American export business in yarns. With few exceptions, both spinning and manufacturing are carried on by the corporations, and the machinery is so arranged that the looms consume all the yarn that may be spun

on the mules or the ring frames, so that what competition the Lancashire employers and workpeople have to meet with, is in the cloth which the American mills are now hurrying out in such large quantities. Respecting the Northrop loom, I was informed by a reliable authority that such looms were making no headway in Fall River, and that at one mill the management had caused the Northrop looms to be replaced by others of a different character. The Ironworks Corporation is at present increasing its number of looms to 10,000, and the management refuse to put in any of the Northrop looms. Reports from the South are to the effect that the Northrop looms are not a success from a financial point of view, and that the reason why such looms are going to the Southern mills in such large numbers is in consequence of the loom makers being paid in stock instead of in cash, and as soon as opportunities present themselves, their shares are thrown upon the markets in various parts of the country. There is a kind of mill-building mania going on in the Southern States of America, and how long it will last is a difficult question to express an opinion upon, but I do think the promoters of such enterprises will not be able to depend upon the help of child labour for much longer, as there is a very strong feeling against a system which allows children of 6, 7, and 8 years of age to work in the heated rooms of cotton mills from early morning until late at night, and that for the sum of 2s. 6d. per week. The "United Textile Workers of America" dealt with the question of child labour at their last convention, held in Washington in October, 1902, and later still the American Federation of Labour has taken action in the direction of bringing about legislation in the interest of child labour, as the organised workers are opposed to the employment of children under the age of 14 years in any manufacturing industry, and have resolved to give their moral and financial support to every movement designed to abolish child labour. This decision is highly creditable to the organised workers, and it is to be hoped their praiseworthy efforts to stamp out the disgrace which now attaches to the system of child labour in the Southern mills will be successful in every respect.

On questions relating to the American trade and commerce, I was surprised at the manner in which the Press was used to boom information which was of a favourable character to American manufacturers and their workpeople. The journalists make a practice of writing in an optimistic spirit about everything which is American, and thereby give encouragement to employers and workpeople in their efforts to take the lead in the industrial race for supremacy. As a rule the opposite course is taken by commercial and other writers in this country, and this tends to damp the ardour of all concerned in labour and commerce. I consider it would be better for employers and workpeople in England if the policy of the American Press was adopted in this country in the way before referred to.

Answers to Questions, by Mr. THOMAS ASHTON.

Questions.

(A) EARLY TRAINING OF THE WORKER.

1. Is the American lad better equipped by early training and education for his work than the English lad?
2. If yes, what changes would you suggest in the English system of education for the working classes?
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?

Answers.

1, 2, 3. I am of opinion that the American lad is better equipped, by his early training and education, to contend with the battles of life than is the case with the English lad. The English system of education for the working classes should be of a more practical character; the schools should be free, and both the boys and girls should be taught such knowledge as will greatly help them in the field of labour in which they intend to earn their living after leaving school. This practice is pursued in the American schools with

Questions. *Answers.*

great advantage to the pupils. Myself and other members of the Commission visited many of the American schools, and we were very much impressed with what we saw, as the methods adopted in teaching were well calculated to drive home to the minds of the scholars the kind of information they were desired to learn. The children of American workmen are kept at school till they are 14, 15, or 16 years of age, and at the later period their scholastic attainments are such as to fit them for entering upon a useful life for the benefit of themselves and their country. The children of the English working classes are taken away from school much too early in life. To make up for their shortcomings in education, I consider it would be a step in the right direction to make attendance compulsory at evening continuation classes, and much good would result if pressure could be reasonably brought to bear on persons ranging from 18 to 26 years of age, with a view to causing them to attend technical schools in the evenings

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

I cannot say much about the relations between the American employers and their workpeople.. The former are not organised as is mostly the case in England, still they appear to be impressed with their responsibilities towards their employed, are strongly opposed to tyrannical and domineering practices on the part of foremen or others in authority at their industrial establishments, and generally display a disposition to give encouragement to those who show extra ability in the department of labour in which they are employed, by increasing their wages, or in promoting them to higher positions. This system gives an incentive to young men who aspire to make headway in the labour world.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?

4. The working hours per week in the American cotton spinning and manufacturing industry are 55 in the State of New Jersey, 58 in the States of Rhode Island and Massachusetts, and in the other Northern States not before named they are 60 per week. In the Southern States they vary from 66 to 72 per week. In England the working hours for productive purposes are 55 per week. I was told there was no chance whatever for any further reduction of working hours in the States of Massachusetts and Rhode Island till the other States come down to their level in working hours, and of this there is no prospect whatever.

5. Does the American workman do more or less in an hour, on average, than the English workman?

5. As to whether American workmen do more or less work in an hour than the English workmen, my impression is that there is very

Questions

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

10. Where weekly wages are paid—
    (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
    (*b*) On this system do personal energy and initiative meet with a due reward?
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

Answers.

little difference between them when they are employed under similar conditions, but the general go-ahead policy of the Americans enables them to make the most of their opportunities for earning good wages, especially when employed on piecework.

6, 7, 8. The system of piecework rates is generally in force in the textile industries, but I visited mills in which some of the workpeople are paid weekly wages. Employers in other industries where machinery is largely in use pay their workmen by piecework rates as far as their opportunities will enable them to do so, but there is a strong and growing feeling amongst the workmen against the piecework system, as they contend it is leading to a state of employment which is fast becoming unbearable. At one very large locomotive and electrical works which I visited, where close upon 15,000 workmen are employed, the principal foreman told me that 85 per cent of the pay roll is piecework, and he further said that the production of the works had increased 25 per cent since they changed their system of daywork to piecework, and that with the same workmen, the same tools, and the same appliances; in one instance the increased output had been 40 per cent. He stated that it was in consequence of such results that employers were anxious to establish the system of piecework rates in their works, as it meant a benefit to both sides, the workmen getting better wages and the employers a greater output. How this system will work in times of industrial depression remains to be seen, but it seems to me that it will become a difficult labour problem for future settlement. When skilled workmen employed on piecework rates increase the output per man by their own exertions, their employers don't make a practice of cutting down their wages or piecework rates, and this consideration on their part is favourable to their scheme of piecework labour.

9. I could not obtain reliable information as to the systems of premiums and bonuses to American workmen, and I don't think the practice is more prevalent in American industries than it is in England.

10. In cases where American workmen are paid weekly wages, they appear to act on the principle of giving a fair day's work for a fair day's wage, and in my opinion, personal energy and initiative meet with fair reward from their employers.

11. I was told by American workmen employed on timework, that their employers are generally anxious to get them to increase their output per man, but they also declared that they are not so anxious about increasing

Questions.

12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?

13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?

14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?

15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?

16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?

17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?

18. Are the American employers more accessible to their men than English employers?

19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?

Answers.

wages in a similar manner. They said that they did their best to give satisfaction in the amount of work they performed.

12. The introduction of labour saving appliances and all up-to-date machines in factories and workshops is not opposed by the workmen as a rule, as their experiences are that such changes tend to increase their earnings, and they admit it is a suicidal policy on the part of wage earners to oppose improvements in industrial methods.

13. Suggestions which are made by workmen for increasing production are welcomed by their employers, and when they are put into practical effect, the workmen are generally rewarded for the improvements brought about.

14. Generally speaking, American workmen attend to a larger number of machines than is the case in England, but taking quantity and quality of work into consideration, I don't think they work any harder than the English workman.

15. As to American and English workmen, I don't think there is much difference, if any, in the amount of "overlooking" required, so far as the bulk of trades are concerned, but in the cotton industry there is more "overlooking" in America than in England.

16. As to whether the American workmen are better than the English workmen for exercising initiative, and for working without frequent and detailed instructions, I don't think there is any difference between them, especially when they have been properly trained up to their work.

17. I don't think the American workmen are more disposed than the English workmen to exert themselves in times of special pressure, and at such times to work overtime cheerfully. In the bulk of trades, in both countries, overtime is worked in accordance with the varying circumstances of business, except in industries where the hours of labour are regulated by statute law.

18. American employers have shown more disposition of late years to meet their workmen for the purpose of dealing with their labour grievances than formerly was the case, and this change of policy on their part is said to be in consequence of trade-unionism having become a powerful lever for bringing about labour reforms. Employers in both countries find it to their advantage to deal with trade union officials in times of labour disputes.

19. My opinion is, that there are greater opportunities for working men to rise in the social scale of life in America than is the case in England, and one reason for this is that they have the chance of handling considerably more money.

Questions.

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

Answers.

20. As to whether the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, are better met in America than in England, from what I saw, I should say they are not.

21. Comparing American factories with English factories, and their equipment for production, I can only say, so far as the cotton spinning industry is concerned, that the only advantage which I found to obtain in the American mills is that a much better material is used than is the case for the same counts of yarn in the English mills. I don't think the American cotton mills are better managed than the English mills, and there are very few University trained men in either country who are employed as managers. In America, workmen who have attended technical schools and passed examinations in the various subjects relating to their employment are given preference when promotions have to be made. I don't think better work is turned out of the American factories than is the case in the English factories, taking a similar class of material to work from.

22. In the Northern States of America, the cotton factories work from three to five hours per week more than they do in England, and to that extent more work is turned out, but I don't think the machinery is driven at a greater speed than is the case in the English mills.

23. From what I saw in the American factories, I am not prepared to recommend the introduction of any of their methods in the English mills, except so far as relates to using better material, and the same being very well carded and satisfactorily cleaned, which conditions tend to increase the output and improve the quality of the production.

24. *(a)* As to whether the American workmen are better fed than the English, my impression is that they are, and this is the opinion of workmen who formerly lived in England, but are now working in the American factories. *(b)* From the workers' point of view, there is very little difference in the price of food in England and America, as was admitted by a number of workmen who have had many years' experience in both countries.

25. (*a*) American workers are not better clothed than the English, but their clothing is of a satisfactory character. (*b*) Ready-made clothes are almost as cheap as they are in England, but persons who desire clothing of a good quality, and to be measured for their suits, have to pay from 50 to 80 per cent more than they would cost in England.

Questions.

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?

28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?

30. If yes, does he *in fact* save more, or not?

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?

32. Is the American working man more sober?

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

34. Is it true that the American workman is thrown out of work at an early age?

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

Answers.

26. I don't think the American workers are better housed than the English. The house rents in America are from 50 to 100 per cent higher than in England. I am not in a position to state whether more workers in America own the houses they live in than is the case in England; but my opinion is that they have better opportunities for doing so, providing they are that way inclined, on account of their superior position from a wage earning point of view.

27, 28. The average wages of mule spinners in the New England States are 16 dollars, or £3. 6s. 8d. per week, as against £1. 18s. in Oldham and surrounding districts, being a difference of 75 per cent. Taking into account the cost of living, I consider the American spinner has an advantage over the English spinner of fully 40 per cent on his wage earning power.

29. I am of opinion that a careful, sober, and steady workman, whilst keeping himself efficient for his duties, can save more money in America than he can in England, and I am confirmed in this view by the evidence of workmen now resident in America who formerly lived and worked in Lancashire.

30. Workmen who are inclined to save money can do so more rapidly in America than they can in England.

31. My information is to the effect that gambling on horse-racing, &c., does not enter as largely into the life of the American workmen as into that of the English workmen.

32. I consider the American workmen to be more sober than the English workmen, and this is quite clear in every industrial centre where a visitor may spend some time.

33. I don't think that the American workmen do more work in their early manhood than the English workmen, but they worry their minds more about what they have got to do, and this, combined with their hurry-scurry system of getting through their work, may have the effect of deteriorating their physical powers, and causing their working years to be shortened.

34. The American workmen are thrown out of employment at an earlier age than the English workmen, and this is the opinion of all the workmen I conversed with upon the subject.

35. I cannot say with any degree of confidence whether the average life of the American workman is shorter than that of the English workman, but I saw large numbers following their employment who were well advanced in years.

Questions.

36. Are a larger or smaller proportion of American working men, dependent upon the public purse than is the case in England?

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

Answers.

36. There are fewer of the American working people, in proportion to their number, who are dependent on the public purse than is the case in England. The American workmen consider it almost a crime if they are compelled to go to a poorhouse on account of their poverty.

37. It is generally admitted by American workmen with whom I conversed, that in case of them getting past work, or being incapacitated by ill-health or accident, their children and friends are always willing to help them to the best of their abilities, and I consider this kind of sympathetic feeling is more prevalent amongst the working classes of America than is the case in England. No doubt the reason for this is the better system of education which prevails in America compared with that in England, and the superior opportunities the working classes have for earning higher wages, both of which influences tend to the result referred to in this question.

38. I consider that the general conditions of life of the American workmen are better than what obtain in England. Considerably more money passes through their hands, and the great bulk of them spend less money in drink and gambling, and as a result they are in a position for enjoying more of the benefits arising from better social surroundings.

39. As to the working of the Civic Federation, the head office of which is in New York, I cannot at present say much about it, but so far as I understand its object in relation to labour disputes, I quite approve of its aims in trying to avoid strikes and lockouts by conciliation and other methods which employers and workpeople may be agreeable to adopt.

40, 41. I am not in a position to say whether such an organisation could be introduced into England as the Civic Federation of America, as both employers and workmen in England, in the principal industries, have organisations for dealing with labour questions, and unless compulsory arbitration is enforced by law—and the British workmen are opposed to this—I don't think there can be much improvement brought about in England in the methods adopted for dealing with labour disputes. Conciliation and a reasonable disposition on both sides for meeting labour difficulties, as they arise from time to time, are sufficient for preventing either strikes or lockouts.

THOS. ASHTON.

Mosely Industrial Commission.

Report by Mr. W. H. WILKINSON, of the Northern Counties Amalgamated Associations of Weavers.

Having availed myself of the kind invitation of Mr. A. Mosely to form one of the "Industrial Commission" to the United States, it now becomes my duty to give a report of same.

I left Liverpool on the Cunard s.s. "Umbria" on November 1st, 1902, and I arrived at New York on the 8th, after a fairly pleasant voyage. The day following my arrival in New York I spent in going through what was stated to be the poorer quarter of the city. As in all other large cities, it was soon perceived that a large amount of poverty existed, but this, I was informed, the authorities were doing their best to cope with. What is the cause of this poverty is not for me to say, but there is this to be said regarding the United States, that if a man wants work, there is work for him to do. The superior resources of the country in minerals, natural waterways, etc., are so great that a workman need not starve whilst able to work.

Educational.—I spent two days in going through the public and private schools in New York City, and from minute observations made, I am fully convinced that the American youth has a far better chance of gaining technical knowledge than the English youth. In one educational institute visited, there were the names of 3,600 students on the books—the fee for each student being fifteen dollars for a course of six months—where electricity, chemistry, engineering, etc., were taught. To such an extent are the various subjects taught that students have been known to leave the schools and start work as journeymen without having served any apprenticeship. To show how highly education is appreciated, I may also quote the following figures showing the number of students at another educational institute visited :—

School of Science, night classes	825
„ „ day classes	52
Art Department, night classes	1,150
Women's Art School	311
School of Stenography and Typewriting...	39
School of Telegraphy	22
Total number of pupils	2,399

There appears to be no expense spared in developing and training the young mind in the United States—every branch being taken of technical, scientific, and commercial education, and the willingness to learn displayed by the student was a pleasure to see. The outlay must in the end give a grand return to the people of that country, and the example given might well be copied by the authorities of our own country, for whatever may be said to the contrary, it cannot be denied that we are lacking in technical knowledge. If we are to be in the race for supremacy we shall have to be up and doing, and our young men will have to throw more energy into the subjects mentioned, or otherwise we shall soon be in the rear. I may also say that what holds regarding education in the City of New York, holds also in the other cities in the North, as well as in the cities visited in the Southern States.

Hours of Labour.—After having visited a large electrical works employing 9,700 workmen, and also a large engineering works employing 4,500 workmen, both at Schenectady, I went to Niagara to see the Falls, and also to see the electric power-house at the same place. Thence I made my way to the New England States, for the purpose of making a full and comprehensive investigation of the hours of labour, etc., of the cotton workers in the several States. From inquiries made I found that the hours of labour varied in different States, and this was accounted for by the fact that each State makes its own laws which fix the hours to be worked. In the State of New York cotton operatives work 60 hours per week; in the State of Massachusetts the hours worked are 58 per week, while in the Southern States the hours worked varied from 62 to 72 per week. I should here also state that in Fall River and New Bedford, as well as in many other cotton weaving and spinning districts, work is commenced at 6-30 a.m., and there is no stoppage until 12 o'clock at noon, when there is a stoppage of one hour. Work is recommenced at one o'clock p.m. and continued till six o'clock p.m. On Saturday work ceases at 12 o'clock noon, which gives the workpeople a full Saturday afternoon holiday. I was, however, given to understand that there is no difficulty in getting the operatives to work overtime when required. In the Southern States the condition of the workers is bad in the extreme. Young children, whose ages are as low as six years, are in some cases worked the hours named. I was, however, pleased to hear that a strong attempt is being made to alter the present state of affairs regarding such employment, and, if possible, to bring them to something like an equality with those which obtain in the North, and in my opinion this is a question for the Northern as well as the Southern States. Throughout the State of Massachusetts children are not allowed to commence work in factories or workshops until they have reached the age of 14 years, and they have then to obtain a certificate that they can read and write. Another provision or State law is that persons of both sexes between the ages of 14 and 21 who cannot read and write the English language may be employed, provided that they attend evening schools and show 70 per cent of attendances.

So far as my investigations went, I found no coloured labour employed inside any mill. In many cases, however, coloured labour is employed on some outside jobs about the mills, but I was informed that up to the present it had not been possible to persuade them to work inside as weavers or spinners.

Prices and General Conditions of Factory Operatives.—In no State did I find any standard list of prices agreed upon by the employers and operatives to be paid for weaving. The head of the firm in all cases fixed the price which was paid, and in many cases, should a piece of cloth be faulty, only half rates were paid. In all cases that I investigated I found that the plain cloth weaver was paid as high a wage as the dobby, sateen, lappet, or jacquard weaver. This system gives great dissatisfaction to the weavers, skill not being taken into account. Several attempts have been made to get the employers to alter the same, and pay for work done by a standard list of prices, as is done in Lancashire, but up to the present the attempts have been futile. No doubt the failure is due to the want of organisation amongst the workpeople affected. This want of organisation is to a great extent caused by the workpeople being composed of so many different nationalities. The members of one weavers' association were composed of seven different nationalities at the time of my visit, and I was informed that a great amount of racial jealousy exists amongst them. A large number know nothing whatever about the principles of trade organisation. No doubt, as time goes on, all this will be removed, but until better organisation is come to, the workpeople are in a measure practically helpless, and will have to bow to the dictates of the employer.

The cotton trade has increased throughout the whole country during the last few years at a remarkable rate. At New Bedford alone (in the North) the looms and spindles have increased by 58 per cent within the past ten years, while the progress made in the Southern States has been even more remarkable. But whereas the increase in the North is largely the result of the protective tariffs, which, by excluding foreign cotton goods, have given a great impetus to the home trade, the increase in the Southern States is more particularly due to economic considerations, *e.g.*, proximity to the cotton plantations, cheap labour, etc. It is also surprising what different classes of cloth are being woven in the American cotton mills; but practically the whole of the cloth, other than plains, are for the home markets. One firm visited had 2,000 looms weaving nothing but lappet cloths, and 2,000 weaving lenos, loops, and jacquard cloths.

To show the immense size and the enormous output of some of the American cotton mills, I may quote the following figures bearing on the previous year's working, which were supplied to me at one mill visited:—

Days worked	305.
Cotton used	3,502,337 lbs.
Coal used	8,258 tons.
Oil used	10,529 gallons.
Starch used	74,250 lbs.
Cloth made	21,310,775 yards.
Paid in wages	477,000 dollars.
Number of looms	3,078.
Spindles—75,000 ring frame, 55,000 mule	130,000.
Number of workpeople	1,200.

This mill is not an exception; there are many others of a similar size

All modern mills in Fall River and New Bedford are fairly well arranged in regard to sanitation; others are being improved. One thing an Englishman would complain of is the great heat in some of the weaving rooms—many being heated from 80 to 90 degrees Fahr. And when artificial humidification is resorted to, as is the case in many instances, the effect is prejudical to the weaver's health. I was informed that there was no regulation in regard to air space in the weaving sheds or weaving rooms. There is, however, a "State inspector of buildings," and the question of sanitation is also supposed to come under his superintendence. The ventilation in some weaving rooms was considered up to date, but in some of the older mills, with low ceilings, there is great room for improvement.

As previously stated, the membership of the various weavers' associations is not what it might be, but other branches of the textile trades, with the exception of the cardroom workers, are well united. Loom overlookers or fixers have a membership of 90 per cent, and tape sizers have a membership of 98 per cent of their respective associations. All the different branches of cotton workers' associations are also formed together as the United Cotton Workers' Association, and as such are affiliated to the American Federation of Labour. In almost every case spinning and weaving are carried on side by side in order to induce economy of working. No doubt this system effects a great saving in the cost of carriage, and also prevents waste, since the yarn is not damaged, as is the case when it is sent by rail. I may also say that some of the weaving sheds contain as many as 4,000 looms.

Machinery.—Weaving in the United States is carried on both in weaving sheds and also in buildings up to three storeys in height, the floors of which are of wood. The looms mostly in use are of American make, and are known as "underpick looms." A great number of American

looms are also under-driven. In the under-driving system the motive power is supplied from a shafting which runs underneath the floor, which shafting is connected to the loom by a short belt. It is claimed that by this method of driving there is less vibration than is the case in the overhead system. In a number of mills electricity has superseded steam as the motive power; it is claimed to be much cheaper. The looms generally are of a lighter build than the looms in England. The speed at which they are run is also considerably less than is the case in this country. The loom most spoken of at the present time is that made by Messrs. Draper Bros., at Hopedale, Mass., which is known as the "Northrop." This is, without doubt, a clever piece of mechanism, and, according to information I obtained at the works, some ninety are being turned out per week. Still, in my opinion, it is far from being perfect, and is also too complicated in its construction. No doubt time will remedy, to a great extent, its defects. Even in the United States, opinions differ regarding its value. Several firms which have recently made large extensions have put down the ordinary American loom, although the Northrop loom is being manufactured so near. One thing which struck me in the Northrop loom was the slow speed at which it is worked, only 165 picks per minute, as compared with the 200 to 210 per minute in the English loom. In considering the value of the Northrop, we must also take into account the number of extra hands required, such as weft carriers, cloth carriers, cleaners, oilers etc. No doubt the loom in its present state will to a great extent perform its work when weaving plain cloths, where the best of material is supplied; but for material such as is in vogue in this country, I cannot see that it can be a success.

Another loom to which I had my attention drawn was one which had an electric stop motion attached to it. This is, in my opinion, about the best I have seen; but, like all looms with automatic stop motions, good material is essential.

A drawing-in machine is now coming into use, which is for drawing the threads of the warp through the healds before it comes to the weaver. At the time of my visit only eight of these machines were in use. It was also reported that a further improvement of this machine would shortly be on the market.

The keen appreciation which Americans have for up-to-date machinery, and the readiness with which they adopt labour-saving machinery of any kind, is remarkable. But, whatever part machinery has played in the American cotton trade, there is no doubt whatever that the great increase of recent years, especially in fancy cloths, must be attributed to the American protective tariff.

WAGES.—Weavers' wages vary in accordance with the class of work turned out, and the number of looms each weaver may have to look after. The number of ordinary looms which a weaver has charge of varies from four to ten. The largest number of Northrop looms which I saw in charge of one weaver was 21, and the smallest number was 12. The highest weekly wage that I noticed earned by a weaver on ordinary looms was 13 dollars, and on Northrops between 14 and 15 dollars. These wages, however, are only earned by good weavers, and cannot be taken as the average. It is difficult to get the real average for reasons mentioned above, but from what I could learn the weekly earnings for adults averages in New Bedford and Fall River close on 10 dollars. Winders are earning on an average from six to six-and-a-half dollars per week for from 60 to 65 spindles. Warpers' wages average about eight dollars per week, but in one mill visited, where the warpers had four warping frames each, their wages were said to average nearly 10 dollars each per week. It should, however, be stated that each of these warpers had a creeler to assist. Tape sizers are paid for coarse yarns at the rate of 23 cents per hour, but for fine yarns the payment is 23½ cents per hour—working hours being 51 per week. Overlookers' wages vary according to the number of looms they may have under

their charge, and also according to the class of work woven. I was, however, informed that the average weekly wage in the principal weaving centres in the North is about 13½ dollars. This wage is, however, increased if the number of looms is above ordinary. In no case does an overlooker engage the weavers. This is left to the overseer or the superintendent of the weaving department. It was a pleasing feature to find that in the cotton trade wages are paid weekly.

In the mills in the Southern States I found the rate of wages of all factory workers considerably less than in the North. Here there is no standard or fixed agreement as to prices, and the operatives have to accept such prices as are fixed by the several firms. I found, however, that an attempt is being made to try and organise the workers, as the opinion is growing amongst them that they should have a voice as to what their labour is worth.

GENERAL.—At all the mills which I visited the quality of the yarns was far superior to those used in this country, hence the weaver's ability to look after more looms. Give the Lancashire weaver the same conditions and he will, in my opinion, equal, if not surpass, his American cousin. No doubt, greater wages are earned in America than in England; but when rents, clothing, and several other necessities of life are taken into account, I do not think the real gain is so great as it seems to a casual observer. The relation of female labour to male labour appears to bear much the same proportion in the American mills as in the English mills.

I have in the foregoing remarks confined myself principally to the weaving industry knowing that the other industries are being dealt with by their respective representatives on the Commission. I cannot conclude without thanking Mr. Mosely for the honour he conferred on me in asking me to form one of the Commission. My thanks are also due to our Central Committee and General Council for allowing me the privilege to accept the same. Likewise are my thanks due to the captain, officers, and crew of the s.s. "Umbria," for the kind and courteous treatment received on the voyage from Liverpool to New York and back, every man, from the captain downwards, doing his best to make the voyage as pleasurable as possible.

Answers to Questions, by Mr. W. H. WILKINSON.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Yes. In my opinion, the American lad is better equipped by early training and education for his work than the English lad.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. I can only suggest that some system of compulsory attendance at technical schools should be adopted, more particularly in regard to having to attend evening continuation schools.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Hours of work in the cotton trade in the Northern States of America are 58 to 60 per week; in the Southern States there are no fixed hours, some mills working 72 per week. In England the hours worked are 55½ per week, of which half an hour is for cleaning purposes.

Questions.	*Answers.*
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. Opinion differs in regard to this question; but, personally, I do not think there is much difference between the American and English workman.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. In the cotton trade, both spinners and weavers in America, as in England, are on piecework rates. Both employer and employed appear to think it is the best.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. So far as I know, wages are not cut down to prevent a man earning more than a certain amount.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. I am not aware of any bonuses or premiums being given in the cotton trade either in England or America.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) I should say "yes" to this question; though there may be some exceptions. (*b*) I believe there are cases where personal energy and initiative have not met with a due reward.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. I could not answer; it is a question for the employer.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. I should say "yes" to this question; and from what I saw, I believe labour saving appliances are welcomed by the workmen.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes; I believe they are.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. Yes; the workman, as a rule, attends to more machines. The statement is made by some workmen that both employer and employed get a benefit by so doing, whilst some workmen hold an opposite view—that, in the long run, there is no benefit for the workman.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. So far as I could see, there is very little difference between the American and English workman in regard to "overlooking;" the majority of workmen in both countries being willing to do their best.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. I do not see any difference in this between the American and English workman.

Questions.	*Answers.*
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Opinion differs in regard to this question.
18. Are the American employers more accessible to their men than English employers?	18. I am informed that in the cotton trade in America the employers are accessible to their workpeople on the same lines as they are in England; there is no trouble in seeing them.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. This question is a difficult one to answer, a deal depends on how a man tries to get a higher position.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In cotton mills sanitation and ventilation are in my opinion not so good in America as in cotton mills in England.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) American cotton mills are well equipped, the employers, so far as I could see, going in for the best machinery they can get. (*b*) It is a matter of opinion whether the American mills are better managed than our English mills. (*c*) I cannot say that better work is turned out in American cotton mills than in our English mills.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. The output in the American cotton mills is less per loom per week than in the English mills, though shorter hours are worked in the English mills.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. I consider the Englishman, as a rule, as well fed as the American; several of the commodities required in America being dearer than in England, whilst some are slightly cheaper.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. I consider the Englishman better clothed than the American; clothing being considerably dearer in America than in England.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) I consider the English workman better housed than the American; (*b*) rent being almost as much again in America as in England. (*c*) Cannot be answered.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. In the weaving trade the American weaver earns more money per week than the English weaver, through looking after more looms and having better work; but when the

Questions.

Answers.

cost of living in America is taken into consideration, I should say the American weaver would be, say, from 10 to 15 per cent better off in the matter of money at the week end.

28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

28. This question is answered in question 27.

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?

29. I should say "yes" to this question.

30. If yes, does he *in fact* save more, or not?

30. I cannot say.

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?

31. I do not think gambling on horse-racing is carried on to the same extent in America as in England.

32. Is the American working man more sober?

32. I cannot say.

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

33. From all appearances, I should say "yes" to this question.

34. Is it true that the American workman is thrown out of work at an early age?

34. I was informed that it is true that the American workman is thrown out of work at an early age, more especially on showing a sign of physical weakness.

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

35. I should say "yes" to this question; and is brought about by various causes.

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

36. I should say a smaller proportion of American working men are dependent on the public purse than is the case in England.

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

37. I would not like to express an opinion on this question, as the time at our disposal did not permit of the fullest inquiry.

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

38. Opinions differ even amongst men who have lived for years in both England and America.

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

39. Personally, I fully approve of the working of the Civic Federation.

40. Could an organisation on the same or somewhat modified lines be introduced into England?

40. I see no reason why such an organisation, if one is not already in existence, should not be introduced in England on the same lines as the American organisation.

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

41. Personally, I am in favour of taking steps to establish such an organisation.

W. H. WILKINSON.

Mosely Industrial Commission.

Report by Mr. T. A. FLYNN, of the Amalgamated Society of Tailors.

It is a humiliating fact that the children of our industrial population receive an education very much inferior to that given to the children of the United States of America. Not only is education in that country free, but it is continued up to the age of 18, and in some States, even University education is free. So far as American law is concerned, every boy and girl starts life with at least a High School education. The traditions and social considerations which uphold Eton and Harrow, and similar educational institutions, is so much dust in the mouth of an American citizen. He reckons his country is better without them.

With us, the poverty of parents means compulsory ignorance of the children. In America, poverty of the father is another reason why his children should receive the best education the nation can give. So thoroughly is this conviction part and parcel of American life, that I have heard employers express their extreme reluctance to employ anyone under 18 in their works.

If that is so in a country, the natural wealth and resources of which are almost beyond the limits of human conception, how much more necessary is it for the people of these small islands to see to it that the children, upon whose shoulders rests the future, are in education and trained intelligence at least equal to those of the nation which promises to be their keenest and most masterful competitor, as much at home as in the marts of the world.

It is true that, so far as technical education is concerned, we appear to display a deeper interest, but it should be understood, to give one instance, that at the Armour Institute for the training of engineers in Chicago, two years of High School education is considered equal to that given by the institution; and whereas a lad of 16 entering the Armour Institute is compelled to go through a seven years course of instruction, a lad of 18, fresh from the High School, is only asked to take a course of five years, causing it to appear that the High School teaching is of a highly technical and practical character. It should also be stated that the night schools of America are in every way excellent, and may be attended by all wishing to improve their education.

Education with us has become the sport of politicians, and with the child left out there is room for much theorising. It is doubtless true that man does not live by bread alone, and some aspects of the American educational system may fall short of entertained ideals, yet it must be admitted that under it men and women are better fitted to fight their way through life with credit to themselves and their nation than under any system yet formulated in this country. Education should be free and national; free from the Kindergarten to the University. A surplus of intelligence is a better national asset than sunless ignorance. The processes of industry are better understood, better carried on, and better developed by educated and highly-trained intelligent workpeople, than by ill-educated and ill-trained workpeople. In this America is at least a quarter of a century ahead of us, and unless we wake up and fit the shoulders of our children for the burden which will inevitably fall upon them, the day of hobbling senility will surely dawn for us. Young America is awake and thinking in millions.

The hours of labour worked in America by those employed in the tailoring industry are very similar to the hours recognised in England in the same occupation, and vary from eight hours per day to ten and twelve; other trades are similar. It should, however, be noted that

the Saturday half-holiday, so much valued by English workers, has not yet obtained general recognition. The movement in its favour is becoming a popular one, mainly owing to a desire to attend Saturday afternoon sports, which, in turn, is another indication that America is becoming more and more an industrial nation.

With regard to the amount of work turned out in these hours many opinions may be hazarded. In my opinion, where the output is greater in America than in England, it is owing to improved machinery. At anyrate, I saw no evidence of undue driving; on the contrary, workmen enjoyed a freedom of movement foreign to our works. In a large percentage of trades and industries, day wages is the rule; but even in the piece-working trades the wages are reckoned rather by the amount earned in a week, it appearing to be a tacit understanding that no matter what price was paid for each piece of work completed, the value of a full week's work should not fall below a certain number of dollars. This appears to me to be an enlightened, honest, and easily understood system, as on the one hand the worker is assured a minimum living wage, on the other an employer may introduce all and every kind of labour-saving machinery, and do it with the goodwill and help of those employed by him. Be that as it may, this fact is beyond doubt, the American working men and women have a very much larger percentage of their wages left as surplus, after living and home demands have been met, than the English workmen or women.

The "ca-canny" controversy preceded us to America, and the subject had evidently received considerable attention. So far as American employers are concerned, and so far as we could see the best kind of relationship exists between them and the people they employ. Whether in day-wage firms or firms using exclusively the piecework system, every inducement was held out to the employés to combine their interests with those employing them. On both sides there was an unmistakable heartiness and good-fellowship, which can only arise when the output, wages, and general working conditions are satisfactory.

American employers believe that machines rather than men or women ought to be driven, and the clever workman who, by invention or suggestion, enables his employer to carry out this ideal is encouraged in a manner delightfully real and sincere. Let us illustrate. One firm gives a dollar (four shillings and twopence) for every suggestion made by an employé and accepted by the firm. This firm, it may be added, provides a gymnasium for its employés, men and women, and for the latter it also provides a music-room and general lounge. Another, abolishing the money prize, gives a week's or a fortnight's holiday at the firm's expense. Another system of encouragement is that of firms which allow a workman who has an idea that will improve the system or method of production a week or a month to work the idea out, pay him his usual wages, and, if need be, tell off a man, or gang of men, to work under him. Another feature of factory and workshop life in America is the regardless-of-expense manner in which air, light, all sanitary, bath, and lavatory arrangements are carried out. "Better than our best London hotels provide" was the remark of delegates competent to judge. While all were not up to this high standard, it is undoubtedly true that a toil-begrimed working man making his way homewards is a *rara avis* in America. Opinions formed on the questions of factory equipment, factory management, output, and so forth, depend very much upon the articles produced.

In America the universal tendency is to specialise and monopolise, and where this can be successfully accomplished, American energy, superior education, and business training may safely be left to capture whatever market there is for the article produced. The National Cash Register Company, Dayton, Ohio, is, perhaps, the finest example existing of intelligent treatment of workpeople, coupled with intense pushfulness. In moderate phrase it may be termed a workers'

Arcadia. Large, roomy, perfectly lighted and ventilated workshops, heated in winter, cooled in summer, the atmosphere constantly freed from inevitable dust and machine odour; lifts to every floor, excellent wages—in short, every detail of factory life bears the impress of a desire, so far as money and ingenuity can do it, to make the lives of the workers "a thing of beauty and a joy for ever." Nor is there any pretence of philanthropy. It is all done from pure business motives, the firm believing the surest, truest way to the dollars is through the efforts of healthy, happy, contented workpeople. Needless to say, all the machinery was up to date. One man looked after eight machines, another after five, all automatic, only requiring to be fed with material when they asked for it, which they did by stopping. Hard work there was none. A navvy does more hard work in a day than these men will do in a lifetime. Another man attended a machine which bit half an inch out of a slender steel rod, and so on, from marvel to marvel, through a hundred and one operations which go to make a cash register.

Another example of organised effort of a widely different nature is to be found in the pig-killing business of Armour Company, Chicago. From the moment the chain is fastened around the hind leg of a pig, and it is swung round the upright steel disc, head down, ready for the man with the knife, it passes through the hands of 70 men, coming out in quarters ready to be placed in the refrigerating house, there to lose what remains of animal heat; the whole operation—killing, scraping, and other details—being accomplished in a few minutes; in fact, the procession of pigs is as rapid and continuous as a body of men slow-marching single file.

Another section of American factories which present features worthy of consideration are those engaged in the manufacture of clothing. Here, again, we have abundant evidence of the policy which lays down the rule—the better you treat your workpeople the better they will look after and study your interest.

The amount of capital invested in American clothing factories must be enormous, and one is inclined at first sight to question the possibility of an adequate return being obtained. It cannot be claimed that any invention has yet superseded the essential principle of the old sewing machine, that is, nothing similar to the automatic machines to be seen in engineers' workshops, where the workman gives the machine its daily food and lounges around during the time the digestive process completes itself. Short of that, however, which is the ideal striven after, every detail of the old machine has been subjected to the perfecting hand of human ingenuity, and many details have been altered beyond recognition. In every factory of any importance visited experiments were being tried with some form of improved machinery, bearing evidence of the universal feeling of restlessness on the part of Americans with things as they are, and their eager and exultant love of change which means improvement. One notable industrial factor common throughout America is the use of electricity for lighting and the supply of motor power. So largely and lavishly is this used, that some towns, Chicago for example, at night have the appearance of being illuminated in honour of some returning hero or potentate.

Needless to say, every up-to-date clothing factory has its instalment for lighting and for the driving of machinery. In giving some few details of machines seen working it should be noted that, so far as the ordinary sewing machine is concerned, the market for its sale is as open in England as it is in America. There, however, seems to be in America a better market, or, perhaps it should be put, a greater and more constant demand for specialised machinery than there is in England; and it should be further noted that the American manufacturer organises his factory with the object of turning out a suit of clothes very much superior to that placed upon the markets by nine-tenths, if not all, of English manufacturers. Evidence of this is conveyed

in the simple statement that ready-made suits find an evidently easy home market at from £4 sterling up to over £12 sterling, from which it will at once be seen that the American market for this class of clothing is very much superior to our English market; in fact, such a market cannot be said to exist with us.

It is, perhaps, in the stock cutter's room of an American factory that the most striking difference is observed. The ordinary shears have been banished, and their place taken by specially contrived electric cutting machines. Some of these machines are attached to wires, and obtain their electricity from a common motor; others carry their own motor, and are marvels of ingenuity. In some the "knife" is circular, and about two inches in diameter; in others a small razor blade is used. The cutting speed at command runs over 1,400 (fourteen hundred) revolutions to the minute. They rest upon the table, and stand therefrom about nine inches. In use, one hand guides, and the machine slips through the cloth with ease, speed, and accuracy. In some of the older factories, and for very heavy cuts, the ordinary long knife is used; but in all the up-to-date factories the electric cutting machine is solely employed. The claims put forward for these machines are a closer and more exact cut, easier work for the cutter—allowing him to put more brain into his work, greater output, and a greater saving of material. Some of the machines carry an electric light on what may be termed their nose. The cost of these machines, carrying patent rights, is from forty to fifty pounds sterling, and remembering some of the old ramshackle, bunion-raising shears in use with us, I am afraid they will be considered dear. American employers do not think so, and so far as we could judge, they fully justify every claim made on their behalf. As with us, the system of heating irons is a very debatable one. Electricity and gas, in some form, are the two means in almost universal use. The one finding most favour, however, is a system of compressed air and gas. The compressed air is provided by special machinery, and is turned on and off in the same manner as gas. Separate tubing conveys the air and gas to a single tube attached to the iron. This tube may be any length required, usually it is about four feet. The desired mixture is obtained by regulating the air and gas taps—a very simple process. It is claimed that it is the cheapest and most effective system, as its regulation is so easy that a too hot iron, equally with a too cold iron, is impossible. Various estimates of its cost in working were obtained, but the most reliable put it at three halfpence per day per iron, that is, of course, in constant use. To me it seemed the most reliable method, being also odourless, and giving the workman complete control over the iron, a feature lacking in some of the old-fashioned pressing machines.

Speaking of other kinds of machinery more nearly connected with the production of clothing introduces the sub-division of labour question. It may at once be said that American employers are not wedded to any particular system of labour division. Each manufacturer follows his own inclination in this matter, and uses that system which he believes to be the best suited to the class of work he trades in. As a consequence, scarcely two factories are just alike in their system of production. In one factory a coat passes through the hands of some twenty odd people, each doing an infinitesimal amount of work. In another, one man makes the garment right out, with the exception of holes, buttons, and pressing. In all the other factories the system of production oscillates between these two systems. Therefore, it is clear that so far as a definite and agreed upon sub-division of labour system is concerned, American employers are very much where we are ourselves. It would appear, however, that the use of specialised machinery is in more general use in American factories than in English factories. Whether that be admitted in full or not, the following are some of the more up-to-date special machines.

The most notable machine was the Reece button-hole machine. This machine had a bottom and top needle and a revolving platform, and works and cuts a button-hole one inch and a quarter

in length in less than forty seconds. This machine is very much superior to others on the market, both in mechanical device and in the work performed. Other machines there were less clever in construction perhaps, but equally efficient in the performance of the task set them. A machine for felling; another, a marvel in its way, has tacked a pocket quicker than a needle could be threaded and the first stitch put in; a double purpose machine seamed round an edge and pared it at the same time; a patent machine seamed in sleeves; another padded the lapels; yet another cross-stitched haircloth on to the canvas; a twin-needle machine double-stitched an edge at one run round, and so on through the gamut of operations necessary to make a garment, neither money nor effort being spared to obtain machinery which shall most perfectly perform even the simplest piece of work.

Other aspects of factory life may be rapidly touched on. Everywhere there was ample evidence of a desire on the part of the employers to provide the best accommodation possible for those they employed. Perhaps the three most typical of American factories, and they are only given as types, are Stern Brothers, New York; Kirchbaum and Co., Philadelphia; and Hart, Schafner, and Marks, Chicago.

The first-named are what we term in England special order tailors. Their business consists in the execution of orders for firms who do not choose to employ their own men. To what extent this business has grown may be judged from the fact that this one firm alone employs over 600 people, and pays a rent of over £700 (seven hundred pounds sterling) per year. The work turned out is of a very superior order, and in fact, while there, I was introduced to one of the firm, who had just returned from Europe with all the latest fashions, and who showed a very intimate and correct knowledge of the several styles of our best English firms. In appliances and organisation their factory has been—and in its main features still is—a model, even in America. Kirchbaum and Co. cater for all classes, and their factory when completely furnished will turn out 10,000 (ten thousand) suits per week. Its floors (six of which I visited) are 400 feet in length. Everything is the latest and best. A special kind of linoleum is laid on the cutting tables in order to facilitate the movements of the electric cutting machines. Special baskets are provided for the reception of waste material. Ventilation and heating are in accordance with the most modern ideas. Lifts proceed to every floor. In case of fire, stone stairways, which can be completely shut off from the main building, lead into the street. A machine measures every yard of stuff while it is being examined for flaws. These are most of them small details, and are given to show the minute care which is taken to have the best and latest of everything. All cloth used is of American manufacture, and some of it inspected by us fell a very small degree below our English best. Altogether, it was the most magnificent factory we inspected, and impressed us strongly with the Aladdin-like manner capital is invested by Americans in industrial pursuits. Hart, Schafner, and Marks is a firm solidly established, with a turnover exceeding £1,000,000 sterling per annum. Their factory is "hall-marked" as one of the most progressive in America. Other firms may equal, but not surpass the quality and finish of their ready-made goods. In the past every improvement in machinery has been used where possible to reduce the hours of labour, which now stand at eight per day. Briefly, we have in these three firms a fair reflex of the nature, magnitude, and possibilities of the American ready-made trade.

For many reasons, a comparison between their system and ours might be deemed harsh and even unfair. At the same time it should not be lost sight of that as other industries have in output exceeded the demands of what is termed in America the domestic market, so, too, in the ready-made tailoring the same condition of affairs may occur, and our employers be called upon

to face a competition which will shake the stability of our less adapted firms. Wake up, is my advice, while yet there is time.

The position occupied by the custom tailor of America (that is, the merchant and journey tailor employed in the sale and make of the highest class of goods) is from some points of view unique. In England we pin our faith to the hand-sewing tailor, and look upon the machine as the tool of an inferior workman. In America the position is reversed, so much so that it is extremely difficult for an English or British tailor to find employment, being looked upon very much as a relic of the feudal ages. The position is not without its comic aspect. Continental workmen and Scandinavians form the majority of American custom tailors, and these have imported their several styles and systems of working, the machine being the first article required. They have also a greater variety of pressing boards, the uses of which are not always evident. The custom of sitting cross-legged like a tailor is not a fashionable attitude with them. These are some of the points of divergence which, having taken root and flourished in American workshops, tend to isolate the British tailor and make his system ludicrous, and without value in the making of the best class of garments. One concession has been made to British prejudice—the tailor s needle and thimble have not been entirely discarded.

Well-nigh unanswerable reasons are advanced by American workmen on behalf of their system. It gives, they assert, a better made and moulded garment to the customer, one that retains, or, rather, that never loses its original shape. There is more leisure and pleasure in working, and incomparably more wages. With the two latter contentions I am in full agreement, and, as American employers firmly believe the two former, contention becomes envious.

There can be no doubt that the merchant tailor of America obtains a very much higher price for his clothes than is obtained by the merchant tailor of England. Twenty pounds for a dress coat suit is paid; but it should be remembered that where the cloth is English, and there is a great deal of English cloth sold in first-class firms, the tariff on imported cloth increases the price per yard 100 per cent. There is also more interest displayed in style; trips to England and the Continent are a yearly occurrence, and some cross more often. Lesser firms send their cutters to New York for a week or a fortnight's polish. Everywhere and in everything there seems to be a constant striving on the part of business men to sell the most up-to-date goods in the market.

There may be points in American custom tailoring which could be adopted in England. I hae ma doots. The American system is clearly based upon tailoring as it was at the beginning of the last century. Paid per garment as an English tailor is paid, American tailors could not earn a living wage. As it is, their wage is lordly by comparison. Again, the conception of the worth of the machine is as opposite as the poles—in England, entitling employers to a reduction; in America, entitling workmen to three times the amount. These differences are radical differences. In Chicago the rate per hour is practically two shillings. In London it is sevenpence per hour. Yet the London dress or frock coat is by all the theories of art the more human and superior garment. That the frock or dress coat made by a select number of London firms is the best that can be produced under prevailing hand-sewing conditions I am prepared to admit, but that it is the very best that can be produced under any conditions is a matter which will admit of considerable argument. No doubt the best custom tailors of England will hold their own in the future as they have done in the past. Still, even the prestige of English tailoring may wear thin.

The general condition of the worker outside the factory may be said to include, roughly, food, clothing, housing, and, last but most important, wages. There can be no doubt the American workmen—and this includes women—live on a higher plane than their cousins in

England. The cost of food is very similar, but the American workman gets more of it, and of a better quality. Clothing is as cheap in America as it is with us, that is, for those who buy inferior articles. The whole trend of opinion in America, however, is against cheap, sloppy suits. From three to six pounds per suit are the prices usually paid. Nor when the finish and stability obtained at these prices is considered, together with the higher cost of labour, can it be fairly stated they are too high. At any rate, the American workman, owing in a larger measure, perhaps, to the practice of labelling trade union-made goods, is wholly against sweating, believing that if allowed in one industry it will soon nibble at the roots of his own wages. Housing in America suffers from the too rapid expansion of industry. There are other substantial reasons, but, to our mind, that is, in most centres, the main reason. Moderate-minded workmen reckon rent to cost 25 per cent of their income; it ranges from three pounds per month to five pounds per month. Even at the higher figure, the accommodation supplied is not all it might be. Speaking generally, and leaving out special landlord-ridden districts, it may be truthfully said that rent in America is considerably higher than with us. The movement represented by our building societies of working men owning their own house obtains a fairly firm hold in districts and centres in which are situated stable industries; outside these districts the liability of migration acts against the movement. The growing ease of rapid transit and its continued extension is also for the moment against the movement. One thing may be said with all safety. It would be easier for an American workman to buy a house of his own with less effort than it would entail on an English workman.

Wages in the tailoring trade are governed by conditions of labour. The custom tailors—that is, those working on the highest class of garments—earn very high wages. If the best firms in London be taken against the best in New York and Chicago, American tailors are paid a 200 per cent higher wage. Outside these centres wages vary in first-class houses, but even in these places, if taken against the ordinary English town, wages are from 100 to 150 per cent higher. In the best New York and Chicago firms a journeyman tailor earn £6 in less time and in a more easy and leisurely manner than a London tailor earns three. In the factory, or ready-made section, 36s. per week and upwards is the wage of women workers. Here comparison is extremely difficult. The position of women in the American factories is very much superior; they are less driven and better treated. So much so, that some clever workers earn £3 and £5 per week. If the best in England is put against the best in America, the wages of women workers are 100 per cent better in America—a purposely low average. The wages of men working in factories are also much higher than with us. In New York the recognised minimum wage for stock cutters is £4 per week. Outside New York it is fixed at eight shillings less, or £3. 12s. Tailors, machiners, and pressers average from £3 per week. Clever workmen are encouraged in every way, and earn very high wages. In this case an average of 100 per cent higher for average workmen should be struck.

How far these wages enable the American workman to save is very largely a question for statisticians, and entirely depends upon the individual workman or working man's family. So far as inquiries give result there is no manner of doubt that the working classes of America save more money, and save it more easily than the working classes of England. The absence of gambling on horse races and heavy drinking no doubt contribute to this result. The American working man has not even the mildest interest in the former, and is certainly entirely against the latter; virtues which we hope the Atlantic will not for ever keep on the other side. Against this some put the statement that the life of an American working man is much shorter than it is with us. Upon what grounds this statement has been based I confess entire ignorance. It struck me that the balance of evidence was in favour of the American working man living the

longer, and unless there is some tangible proof to work upon I shall continue in that belief. Hard work as it is understood in England only finds a hiding place in industrial America, and as soon as it is discovered, a machine is patented which drives it out. American capitalists do not want hard work, and if they do they know a machine will work harder and longer than a human being and cost less. Consequently, it seems to me that this early death tale wants strong confirmation. Neither do I believe the statement that workmen in America are driven out sooner than our own workmen; the probabilities are all in favour of America. If it is so, no doubt there are figures to prove it. With business men it may be true; with workmen I seriously doubt it.

The relations which surround and go to make up the family life of a nation are difficult matters to discuss, and then only on the broadest lines. My impression is that home life, as it is best understood with us, has only a percentage hold on the American people. In New York alone, in one afternoon, I counted twenty-five different nationalities, and from this it is evident that each and every one has a different ideal. The law of average becomes inoperative under such conditions, nor do single cases give much assistance.

Generally speaking, sober habits of living, a wage above a living wage, good employment, and the high standard of comfort which these bring, do enable children in America to look after their parents when old age overtakes them in a much better manner than is the case with us. I must say, so far as I had the opportunity of judging, children play their part nobly and well.

Answers to Questions, by Mr. T. A. FLYNN.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. The American school system is very much superior to ours. In some States boys and girls may go from the Kindergarten through the High School without the cost of a dollar to their parents. Universities even are free in several States. England is at least a quarter of a century behind, and every year will increase the gap.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. In the interests of the future British race class distinction in education should be abolished, at least up to the University. Education should also be free in all its branches. To speak of a special kind of education for the working classes is to me so much nonsense. Keep in mind the most honoured writers, and keep out the question of technical education. Yet even here money should not block brains.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. Free evening schools are a necessity, from the point of view that no one can be too well educated. Many lads acquire a love of learning after they become men—technical education especially.

Questions.	*Answers.*
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Hours of labour in the tailoring trade of America range from eight per day to twelve per day. In England the hours are very similar. Counting the Saturday half-holiday our hours are shorter.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. The labour performed by the American is less than in England, as a consequence of improved and selected machinery. The machine is the recognised working man of America.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Piecework is largely used in some trades and sections of trades.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. In theory piecework is the ideal system of working. Its chief fault is its undoubted tendency to introduce some form of sweating.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. So far as ascertained, the evident desire of American employers is to increase wages, as the best means of encouraging efficiency. American employers we have spoken to were openly delighted with workpeople who earned high wages.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. The custom of encouraging workmen by giving premiums is more common in America than here, and works well.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) Day-wage men and weekly-wage men in America work in a cool, capable way, notable because of the entire absence of fuss and rush. (*b*) Ability in a workman is prized, and the man honoured in a manner foreign to English workshops. It was worth the trip to see the way capable working men were trusted and respected.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. American employers are anxious to increase the output of day-wage men, and to that end improve machinery and increase wages.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. American workmen welcome improvements in machinery, as they fully recognise the use and value of such improvements in the betterment of the conditions of life.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Workmen in America are encouraged to interest themselves in their employers' business. Firms offer special gifts to workpeople making the most useful suggestion. Others, again, allow a workman to experiment, and pay full wages for time so spent.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) It is undoubtedly true that workmen attend more machines, and fewer workmen attend machines in America than with us. (*b*) So far as seen, the workman benefits through increased pay and less labour; the employer benefits in a greater output and a more perfectly finished article.

Questions.

15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?

16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?

17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?

18. Are the American employers more accessible to their men than English employers?

19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

Answers.

15. The American workman is very much his own "boss," the theory evidently being that if a man will not give his best because he himself wishes to, no amount of driving will make him. This may sound strange in English ears, but American employers are keen business men.

16. American workmen are expected to put brain into their work. English workmen, no matter how ignorant an employer is of his business (and there are many such), must do as he is told or risk the "sack." An American workman risks the "sack" if he does not show some kind of initiative.

17. On the question of overtimeand extra strain, American workmen and English workmen hold very much the same opinions, but the former is better paid, better fed, and is shown more respect, all of which induces American workmen to put in a "bit extra" in times of push with less physical effort than over here.

18. There is nothing an American employer values so much as suggestions from his workpeople, and American workmen speak to their employers with ease and freedom. American employers have no sort of desire to become "bugaboo" to their workpeople.

19. The chances of American workmen rising are very much superior to those of the English workmen; the road to comparative wealth is more easy to find, and the possibilities it leads to are boundless.

20. We have nothing in England to equal in ventilation, sanitation, light, and general comfort the best which obtains in America. Ironmoulder and clerk leave the works spick and span. A grimy workman is a strange spectacle in American cities.

21. (*a*) No money is spared in the equipment of American factories; the best only is good enough. Production is correspondingly increased and ensured. (*b*) American employers interest themselves in the management of their business to a greater and more intimate extent than is the custom in England. How far University men are employed in factories I am unable to state, not having been able to obtain enough information on that point.

22. The greater output of American factories is due, not to longer hours, but to superior organisation of details, better machinery, and the keen, sure grasp American employers have of their business.

23. There would be great difficulty in getting English employers, even for their own sake, to adopt the best features of American factories. Precedent and prejudice trip them at every step. The English conception of

Questions.

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?

28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?

30. If yes, does he *in fact* save more, or not?

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?

32. Is the American working man more sober?

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

34. Is it true that the American workman is thrown out of work at an early age?

Answers.

labour is totally unlike the American. There to work is the most honourable thing a man can do. Here a working man is barely more respected than a thief. Certainly, in social circles he is an outcast. Even where he is taking up (good holy phrase), the manner in which he is patronised acts like an emetic.

24. (*a*) American working men are better fed than the same class in England. (*b*) Food in America is very much as it is with us in price, the balance being in our favour.

25. (*a*) American workmen certainly wear better clothes. (*b*) American workmen pay more for their clothes, suits running in price from three pounds to six pounds. In boots, however, they have some advantage in price, style, and quality.

26. (*a*) The better-class English working man is better housed than the American worker. A well-built house is not a common sight, owing no doubt to the very rapid growth of industrial America. (*b*) Rents in America are higher than here. American workmen reckon them at a fourth of wages earned—that is, from 15s. to £1 per week. (*c*) The desire of American working men to own their houses has not obtained a strong hold. In certain specialised and localised industries, where employment is practically for life, a considerable number own their own houses.

27. Tailors earn excellent wages. In the best firms of New York and Chicago they earn three pounds for every one pound earned in the best London firms. In tailoring factories wages are at least 100 per cent higher.

28. The value of wages in America is 50 per cent less than in England.

29. Careful, sober, steady men can save more money than in England, and save it easier, without the pinch and scrape required here.

30. I have not the actual figures, but from memory saving bank returns show that the American working classes save a great deal more than our working class.

31. Gambling on horse races does not exist.

32. Working men in America lead sober lives; iced lager is the principal drink, and it does not go to the head like our English beer.

33. So far as I could ascertain, the life of an American workman is superior to ours; nor do I think hard work shortens his life to the same extent as it does in England.

34. I am not of opinion that working men in America are thrown out of employment at an early age.

Questions.

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

Answers.

35. (*a*) There does not appear to be a marked tendency in America for industrial conditions to shorten life. (*b*) There was no visible overstrain—at any rate, not more visible than in our own industrial centres. I am also of opinion that the climate is better suited to a healthy man than our English climate. I feel certain that the present working conditions observed by me in America incline to an easier rather than a harder life.

36. There is less poverty in America than with us in England. Even in slack seasons the percentage of actual poor is less than here.

37. It is difficult to answer this question. In New York alone I counted 25 different nationalities. Each of these has its own customs. So far as I could judge, and from inquiries, I am of opinion that the higher wages paid enables children to look after their parents in old age to a fuller, because more possible, extent than with us.

38. In how far it would be possible to introduce the best features of the American workman's life into England is a question which brings into view the old worm-eaten class systems of the Old World and the untrammelled freshness, breadth, and liberty of the New World. The worker is the only aristocrat. Progress in that direction is doubtful.

39. To my mind it appears that work of the description carried on by the Civic Federation confers lasting benefits upon all sections of the community. Run on such lines, there is a boundless field of operations before the Civic Federation. The confidence of the working classes is neither easily given nor easily withdrawn, and while the wage-earner must in the main hammer out the metal of his own life, it is pleasant and cheering to know that outside industrial strife there is a weight of public opinion which may be used to bring about and maintain just and honourable settlements of what would otherwise become bitter and disastrous disputes. The Civic Federation has my vote.

40. Just how far the Civic Federation would prove useful in England is a question not easily answered. Conditions are different. The industrial movement in this country is honeycombed with Conciliation Boards and Arbitration Boards. Again, the points of contact beyond which neither workmen nor employers can go without dispute are clearly recognised. In America such points of contact are not even within sight. The industrial system is just in its apprenticeship, as it were. In England wealth means leisured ease, broad

Questions.

Answers.

acres, and a lordly title. The American who makes his million has only started life; his real future lies before him. To slow down or retire is a tempting of providence. To me, personally, there is fascination in the idea of gathering together the noblest minds and the best industrial intellects in order to make smooth the path of the nation's development. But that ideal is not an English ideal. Nothing, in fact, could be more foreign to the average English outlook. Cultured ease, balls, routs, fox-hunting, and a maudlin taste for politics round up what is termed real English life. All outside is banal. Neither does it appear to me that a change is in process. At the same time, I for one believe that some attempt should be made, and so far as natural limits admit, I am prepared to support such attempt.

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

41. I am in favour of all and any kinds of organisation which shall tend to rob strikes of their brutality, and which shall give reason and right fairplay in industrial disputes.

Terence A. Flynn.

Mosely Industrial Commission.

Report by Mr. W. B. HORNIDGE, of the National Union of Boot and Shoe Operatives.

In this report it will not be possible for me to go as fully into detail in relation to the industry with which I am more directly concerned as I should have liked to have done, and that for some few reasons. The time allotted was insufficient to enable one to thoroughly grasp the whole of the circumstances surrounding such an industry as the boot and shoe trade. However, I made the best use of the time at my disposal, but found when all is said that, like others who have gone before me, I was unable to get in detail the information required. I will endeavour to give the facts in relation to the labour of the workers, and the conditions surrounding their labour, as they struck me in the centres that I visited.

In Montreal I was enabled by the courtesy of Mr. Norris, the manager, to go over the factory of Messrs. J. Holden and Co., where I had an opportunity of noting some of the difficulties surrounding boot manufacture in Canada. I was informed that this firm was not altogether typical of other firms, because they manufacture goods of a higher grade than some and a lower grade than others; in fact, it was the nearest approach to what I should term an English style of manufacture that I witnessed while on my journeys. Ladies' and boys' work, ranging from light to heavy, is made by the firm, and their men's work ranges from a glacé leg, whole patent golosh boot, to a thigh boot. The wages earned run from 12 to 15 dollars per week. The firm has an average output of 2,000 pairs per day. The system of management was very similar to that which one would find in a well-organised factory here at home. There was nothing very striking in relation to machinery to be found there, with the exception of a machine for riveting. This machine cut a channel into which the rivet was inserted and driven home, and the channel was then closed. The whole of this operation was performed at one movement of the machine, which worked at a rapid pace. I was informed that this was the only machine of the kind in use, and that we were likely to hear more of it over here shortly. The wages paid might appear to be high according to an English view, but the machines run at a higher speed than ours, and the people work enormously harder. Of course, I refer to those who work in connection with the machines. The cost of living in this centre is much the same as here in England, with the exception of rents, which run from $9 to $10 per month for workmen's houses in which the accommodation would be similar to that found in Leicester or Northampton in a house rented at from 6s. to 7s. per week.

From Montreal I visited Toronto, where I had no time whatever to deal with the boot industry, as it had been arranged that the whole of our party were to meet at Niagara City.

I next paid a visit to Buffalo, where, after a conversation with some gentlemen connected with the Chamber of Commerce and members of the Trades Council, it was arranged that the following day I should pay a visit to three or four factories there, but the arrangements made for the Commission unfortunately precluded my paying these visits, and we left the same night for Cleveland, Ohio. Here it was impossible for me to glean anything in relation to the boot industry, as I could not hear of any factories being in that city. However, I learned one or two things in

relation to wages which might be of interest. I found that, as in most cities which I afterwards visited, the lowest wage paid for the lowest class of labour was $1½ per day for adults, or in English cash 6s. 3d. per day. This I found to be the minimum rate of wages in the large majority of the cities I visited. Carpenters receive 50 cents per hour, an equivalent in English money of 2s. 1d. The ordinary labourers' pay is 25 cents, or 1s. 0½d. per hour. Of course rents are higher than they are here, and cost of living proportionately so; but taken all round, the conditions of labour are far superior to those we are in the habit of witnessing at home. The average hours worked are 60 per week. Cleveland is reckoned to be one of the most go-ahead places that I visited, and certainly so far as the smartness of its manufacturers and workmen is concerned, it appeared to me to be so.

From Cleveland we went on to Chicago, where I had the pleasure of being escorted around by Mr. Dienhart, of the Chicago Trades and Labour Council. I visited a firm there which I found splendidly organised, but as it is looked upon as virtually the best in the city, it cannot be taken as typical of the conditions which exist in other firms in the city. The average clicker here earns from $15 to $18 per week, or from £3. to £3. 12s. There are 60 of these men employed in the factory. The lasters and finishers, who are all on piecework, earn from $15 to $21 per week. The average finisher's wages in Chicago would range from $9 to $15, for which they would be expected to put through the room 2,000 pairs per day. Welt-sewers average from $18 to $24 per week; stitchers the same. In one firm in the city, during eight months, the stitchers earned an average of $38 91c. Sole rounders on welted work earn from $18 to $25. There are no quantities fixed in this particular firm, but the men are paid full wages, and when the busy season comes do all they possibly can to make up for lost time. In the rough-stuff department, the average wage of sorters is $16 per week, outsole cutters $16, channellers $16 50c., insole rounders $12, and of stock-fitters, or as we term them, fitters-up, cementers, etc., the first man gets $12, the second man $9. Counter hands, or as we term them, sorters, and welt-cutters get $12 per week. Outsole fitters-up and cementers, $13. The average pay of heel-builders was struck at 30 cents, but runs from 25 to 40 cents per 100.

After visiting many other centres where it was not possible for me to get any information in connection with our own industry, in consequence of time being so restricted, I eventually arrived at Boston, and paid visits to Lynn, Brockton, and Haverhill. In the first-named place, at one firm which I visited, two things struck me as being somewhat out of the ordinary: (1) the apparent happiness and contentedness of the people, the familiarity existing between them and their employer, and (2) the fact that quite 40 per cent of them were people ranging from 30 to 63 and 64 years of age. One female who had worked for the firm 29 years, was apparently as happy as could be, and when I congratulated the employer upon the fact that his elderly workers had not been cast into the streets, he asked "Why should they?" and went on to say that he himself was getting somewhat grey, and aged, and would not care to be "pole-axed" or starved, and that as long as his workpeople did their work, he would rather have around him elderly people on whom he could rely, than young ones on whom such reliance could not be placed. I took the liberty of asking the lady above referred to what her age might be, as I saw that she was nearly keeping pace in her work of machining uppers with a woman of 28 or 29 years of age who was sitting alongside her. I was astounded on being informed that she was 63 years old. This firm pays $6,000 per week in wages, which averages about $12 dollars per week to men, women, and children, but it should be remembered that there is no labour on the firm under 15 years of age. There was a new machine here for stitching buttons on, which struck me as being exceedingly rapid, though as the operator had just finished I did not see it in operation. From inquiries I made I figured out that in a ten-hour day it would fasten on 15,120 buttons, averaging 14 to the

pair. After making inquiries in all the departments as far as possible, I came to the conclusion that it was a great pity that not alone on other firms in the States but also in the case of our own factories at home, the people could not be apparently as happy and contented as they were on this one.

I paid visits to two other firms at Lynn, but I cannot say that the conditions at one of them struck me as being any better than we should find in an ordinary fourth-rate firm in England, particularly in the lasting and finishing departments. There were low ceilings, the light was bad, the workpeople were crowded together, and the atmosphere was thick enough to be cut with the proverbial knife. The wages earned by the people were fairly good, but others who were with me came to the same conclusion that I did, viz., that under such conditions, life would hardly be worth living. To make use of a sporting phrase, which I am not much in the habit of doing, "the pace was a cracker," and I could not imagine that any of those I saw working there under those conditions would live for any great length of time; in fact, one gentleman passed the remark after seeing one man at work on a slugging machine—"that man's face and motions will haunt me to my dying day." Such conditions as these I should be sorry indeed to ever see introduced into the industry in England.

It was a pleasant change the next day to pay a visit to Brockton and go through two firms there, both of which are considered to be well managed, turn out a good class of work, and whose workpeople are well paid and contented. I refer to the W. L. Douglass and the "Emerson" factories. Some figures in relation to the wages paid on the former firm may be interesting. On an average the firm pays $27,000 per week in wages. The average wage for clickers runs to about $14 55c. The boy sweepers get $1 per day, but men sweepers and cleaners up get $1½ per day, or $9 per week. The average wage all through the firm comes out at $15 50c. I was informed that the heelers average about $18 per week, and that at one time some of the particularly smart and expert of them, when the busy rush was on, earned as high as $32 in one week; but they range from $18 for the lowest man to $32 for the highest. This firm have extended their business five-fold during the last three years, and are again extending to enable them to employ 3,000 hands. At the present time they employ 2,700. Their output for the last twelve months has been 8,000 pairs per day, and with the new extension and additional "help" as it is termed on the other side, they purpose turning out 10,000 pairs per day. That is what the management have laid themselves out to accomplish. The system of organisation in this actory certainly appeared to me to be as good as anything I have ever witnessed. Labour is divided and sub-divided to such an extent that it would require my personal presence on the firm for at least a fortnight to detail it. One case in point; I saw four men sitting at four skiving machines, each man skiving one side alone of the legs of men's bal. boots. Two things struck me as most peculiar in relation to this; one was that in the average English factory females are employed for this work, and that in an ordinary way one operator would skive the four edges. I asked the guide who was showing me round whether there was any saving in time in relation to this. His answer was "undoubtedly it has been proved so, or this firm would not be such fools as to work on such a system." He added that if it is only a fractional portion of a second that is saved in each operation, it tells up in the course of twelve months' working. Alongside these operators there was a young lady writing out tickets or "tags" as they are termed on the other side. These tags are very different from those in use here, and are long strips of cardboard. I asked my guide what wages a young woman would get for that work. He asked the lady herself, and she replied that she was receiving $3 33c. per day. In answer to a question as to whether that was not high wages, she replied "I earn it." Of course in a factory organised as this is, there is an immense responsibility resting upon the shoulders of anyone writing out these tags,

as there are portions attached for each department, and each operator takes his particular portion when the tag gets round to him, and the slightest mistake in writing out these tickets would throw the whole organisation out of gear. I was informed that the fitting and machining operations numbered 32. Those who are more acquainted with this department of manufacture than I am, will know whether this means a greater sub-division of labour than obtains in our own factories. Female skivers earn from $1 75c. to $2 25c., or from 3s. to 9s. per day. On this firm there is no labour of any description employed under 16 years of age. It is considered an ideal firm on the other side, and it is possible that better conditions obtain here than on many other firms, in consequence of the firm having 64 retail stores of their own. It must be considered that all who were working in connection with machinery were working as hard as possible, not in the sense that one could see them sweating or straining, but the machinery was running at the highest speed, and the operators—to make use of a Yankeeism—had to keep their eyes skinned and their fingers at work.

In a general sense, I found that the conditions of labour in the States were about on a par with those in this country, so far as our trade is concerned. In all departments I found that piecework prices usually ruled, and the workers, in a general way, worked enormously hard, particularly the lasters and finishers. It may be that the atmosphere, which is very bright and exhilarating as compared with our own, has something to do with what I look upon as their natural rush. The standard of living is higher than in England, and the standard of wages is also higher but I should say that, taking the conditions of the workers all through, they are better off in a pecuniary sense than they are here. I found that there, as here, the wages paid differed on the various firms. Certain prices are fixed as a basis, to which the men approximately work, but so far as uniformity is concerned, I was informed that it did not obtain, and that conditions and prices varied on the different shops. Although piecework prices are paid, they are not uniformly adhered to in the various shops.

I was pleased to notice that it is seldom indeed that youths or girls are employed generally, in the East and Middle States at all events, under 16 years of age. It seems to be the desire of American parents to give their children as full an education as possible, so as to equip them for their struggle for existence. The general impression I formed was, that the native American is well educated in comparison with his European *confrère*. His general appearance is that of a stalwart, big-boned, and alert man, and the females might be similarly described. Their system of physical culture in the schools tends to develop the frame equally as much as their system of education tends to develop them mentally. In conversation with some labour representatives, they expressed surprise at the conditions which obtain here in relation to education, their statement being that they considered it absolutely necessary for the best interests of a nation that education should be secular, free, and untrammelled by anything in the shape of religious controversy.

In conclusion, I would say that, taking into consideration the whole of the circumstances in connection with labour in our trade in England and the States, the position of the workers is more favourable in America than it is at home. Of course their system of living is vastly different from ours. So far as domestic comfort is concerned, my opinion is that we could give them points.

The best homes, apart from the native American, are those of Britishers and Germans, who, so my American informant told me, make the best citizens; and this is a consideration to a people who are getting, year by year, scores of thousands of immigrants from Europe, many of them very undesirable.

Answers to Questions, by Mr. W. B. HORNIDGE.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. In a general sense, yes. Lads as a rule do not go to work before 16 years of age.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. A free secular education up to 16 years of age for children of both sexes.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. No. Beyond the fact that it should be impressed upon the minds of the children, while they are receiving an elementary education, that to be thoroughly equipped it is necessary they should have technical instruction. I am in favour of technical evening classes for men.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Fifty-four hours per week in some places, 56 to 60 in others; slightly longer than the hours in England, which run from 52½ to 54.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. I had not a thorough opportunity of comparing, but from observation should say yes, as far as I saw in the factories visited.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Yes; in the majority of departments, in fact nearly all.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. This question is hard to answer. By this system such person, no doubt, gets the full result of the price agreed to be paid for quantities.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. I made inquiries, and was told no; that as a rule employers and managers did not cut down wages, if certain workers proved themselves more efficient than others, it being understood that all were not of equal ability.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. Yes, and appeared to give satisfaction. But not the bonus system as understood in England, where if a smart man earns 10s. or 15s. more than another, instead of being paid the full amount earned, he possibly gets 2s. or 5s.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. As far as possible for me to judge in the different factories and trades, there did not appear to be any difference from that I have noticed at home; with few exceptions there was an absence of rush or hurry.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. The answers I received to this question from men in different industries was "yes."
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Yes. Employers and foremen are constantly on the lookout to improve, and the men apparently do not object.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes.

Questions.	*Answers.*
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. Not in our trade.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. There did not appear to me to be any difference in number of overlookers or foremen.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16, 17. These questions I did not go into, but from what I heard and saw, initiative appeared to be welcomed by employers or foremen.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	
18. Are the American employers more accessible to their men than English employers?	18. Yes.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In some few instances the conditions in relation to baths, etc., are superior to anything I have seen in England; otherwise there are factories and conditions that would not be tolerated in any industrial centre in England.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Some are, and, on the other hand, many are not; the employers in America do not hesitate to invest in new machinery, and if it does not come up to expectations, they put it aside. Any fresh idea is worked for all it is worth. (*b*) It is questionable whether any are better managed, in our trade, than our better factories. English employers have during the last few years generally made vast improvements in the direction of management. (*c*) No, not better than the higher grade goods made in the United Kingdom, which are equal to any produced in the world.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) The longer hours worked undoubtedly give an advantage, all other things being equal, in relation to output; again, the work is more sub-divided. (*b*) Machinery in the boot trade is run at a greater speed with advantage in relation to quantity, but loss of quality in production.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. On this I have no decided opinion; but condition, material, sub-division of labour, and climate being taken into consideration, I do not think there is much between the two countries in our trade.

Questions.	*Answers.*
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) They certainly appear to be in bulk. (*b*) The advantage appears to be on the side of the American, food of all sorts, meats and cereals, being grown at their doors.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Yes. (*b*) Common qualities about the same, better qualities much higher in price in most cities I was in—from 50 to 100 per cent higher.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) I should say, class for class, no. Though the rooms in most instances in the better tenements are somewhat larger, there are as vile slums as there are here. (*b*) This question I cannot answer, not having made inquiries, except in cases too few to pass an opinion upon.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. Comparatively, from 30 to 70 per cent. higher, as far as my inquiries went.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Higher, in my opinion. A man or a family can enjoy a higher standard of life, that is, better food, clothes, etc.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. He can save 2 dollars, where here he might only save 2s.
30. If yes, does he *in fact* save more, or not?	30. This I cannot answer, not having gone thoroughly into the matter, but generally I should think not.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. From my observations and conversation with men of different grades of society, I should say not.
32. Is the American working man more sober?	32. The native certainly is. Here again the climate to my mind steps in; people do not get so depressed there as here, and the air being so much more exhilarating, there is not the desire for strong drink.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I am bound to say that it did not strike me as being true in our trade; in all factories I was in, there appeared to be about the same number of middle-aged and aged people employed.
34. Is it true that the American workman is thrown out of work at an early age?	34. Answered above in answer 33.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. This I did not go into.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. From my inquiries, I should say in proportion a much smaller number.

Questions.

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater-extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

Answers.

37. I should say yes; and I draw the conclusion that the people had so many better opportunities of earning a living, that it is easier for them to support their relatives than it is for the average British workman. The natural resources of the country, as yet only just tapped, its immense coalfields, its metals, and the fact that it is not overcrowded as the United Kingdom is, give the people greater advantages and better opportunities of earning a living, and consequently of being able to keep those dependent upon them.

38. In a general sense, my opinion is that the American worker enjoys a higher standard of living. The second part of this question requires more time to investigate, before answering, than I was able to devote while in the States.

39. As far as I could judge of the effect of its work in the prevention of disputes, and its endeavours to bring both parties together previous to a rupture, yes.

40. A somewhat similar scheme has been before the unions for a few years past, introduced by Mr. Lockie, and is looked upon with favour by some of them.

41. Personally, yes; I am in favour of some such scheme.

W. B. Hornidge.

Mosely Industrial Commission.

Report by Mr. G. J. LAPPING, of the Amalgamated Society of Leather Workers.

In presenting my report on my visit to the United States, I regret that I am unable to endorse the remarks which have been made from time to time by several of my colleagues, viz., that they were very courteously received by employers in the States, and shown all they desired to see. My experience with several employers was, that although I was very courteously received, I was only allowed to look around the establishment as a special favour in a very superficial manner. As far as visitors are concerned, the Leather Manufacturers of the United States seem to be on a par with the English Leather Manufacturers. There does not appear to be the same openness or freedom as with the other industries that were visited. However, I give my impressions as clearly as I can.

The Leather Manufacturers of the States are certainly producing goods which suit the times, this being especially so in the upper leather line. In this line of goods they have made great headway. I am of the opinion, however, that taking the goods all round we produce a better article than they do in the States. Still I do not think we shall ever be able to compete with any degree of success with the leather industry of the States. They possess great natural advantages which do not obtain in our own country. They possess very large quantities of the raw material necessary in the production of leather, which in itself gives them an immense advantage over this or any other country. They obtain hides and skins from their own market, already assorted for the different kinds of leather they intend to produce. The great amount of cattle slaughtered in the States I believe to be one great factor in their success. Other matters which tend to give them the lead are—the large amount of machinery used in all departments of the trade; the specialisation or sectionising of the work; and the thorough organisation which exists in the workshops. The amount of machinery used, both in preparing the hide and finishing the leather, is truly remarkable. There are many machines of the same pattern now in use in our country, but not to the extent that they are used in the States. It must be stated, however, that in the preparation of the hide for tanning there are a great many more hides and skins in the States that are more adaptable to being worked on a machine than there are in England. When the American employer finds there is a machine on the market which is an improvement on the one he already has, it is out with the old one and in with the new. He does not allow his love for the old idea to run away with his commonsense. He trusts to the capability of the new machine to reimburse him for his outlay. In the States tannery or leather-dressing establishments you scarcely find a good all-round man, with the exception of the foreman or superintendent, and these I found in many cases have come from some part of the United Kingdom. The rule seemed to be one man one section of work; consequently this sectionising of labour enables a man to become very efficient in his own particular line, and he can thus produce more work in a given time at less cost and with apparently no more physical strain than the leather worker in England.

The organisation which exists in the workshops is truly worth considering. Everything which tends to do away with unnecessary manual labour is utilised in the States leather factories. The lay-out of the factories always seems to have been well considered beforehand.

In the most of them the green hides and skins are stored close by the beam house, soaks, limes, etc., whilst the tanyard is only a short distance away, and everything is so well arranged that there is practically no waste either of time or labour in transferring the stock from one stage to the other. Elevators and conveyers of all descriptions are in use between the tanyard and the drying lofts and finishing department, etc., all of which help to increase the output and lower the cost of production. In the various departments the men on the special jobs, such as machine men, fleshers, shavers, scourers, etc., also men at the tables working the goods by hand, are all kept constantly employed by reason of "helpers," as they are termed, keeping them continually supplied with material. The factories I visited were for the most part well built, well lighted, and well adapted for the production of leather, and were also generally in close proximity to rail and water. Most of them are fitted up with the most modern improvements for the leaching of bark and conveying the liquors to the vats, the various departments being also fitted up with the latest appliances for both heating and cooling the shops. As a rule the rooms were large and convenient, having great windows, which can be utilised as required to make the place comfortable for the men to work in.

To my mind the whole reason of their success is that they are able to produce, and consequently to sell, their goods cheaper than we can; also, they produce goods in larger quantities of a more uniform quality, the latter, I believe, finding favour with buyers of leather for the manufacture of boots and shoes. I maintain that this cheaper production is brought about by the causes I have before mentioned—The natural conditions; the immense amount of labour-saving machines used; the sectionising of the work; and the organisation in the workshops. To enable employers to keep pace with the times it is the custom in certain factories to offer rewards to the employés for practical suggestions for the saving of labour, or improvement of the plant, or method of conducting the establishment. This induces men to be always on the alert and to take an interest in the work that is going forward, and in my opinion nothing is more conducive to good work than to have the workman's interest aroused in the same. This is a matter which at the present time would not be tolerated in most factories in England, as the management would think the employé was getting too large for his place if he suggested any improvement in the method of conducting the establishment, and would in all probability discharge him.

The machinery in the States is run at a higher speed than our own. They are not so afraid of overdoing it as we are; in fact, they treat a breakdown very lightly. "What does it matter?" they say. "If the thing cannot stand the strain it is no good to us, and the sooner it shows its weakness the better. We shall then put one up in its place that will do the work required." I am inclined to think it is so also with the employé. When he cannot stand the strain and breaks down or becomes rather slower than his fellow-workman, he is soon put down. "The slow man is no good at all to me," remarked a large manufacturer; "we want smart intelligent young men here." He also informed me that they often take a young man in, no matter what his previous employment, and teach him to do a certain kind of work, probably on one of the machines. If he has anything about him at all, he soon becomes as good as the next man and is put on piecework, and is able to make a decent living wage for a great amount of work. This is what they require:—Smart intelligent young men who are kept at one job, year in year out, and who, if they should fail to keep up with the others, are turned off. In some of the firms they have a system of putting a certain amount of work through each day, each man doing a certain portion of the work. The failure of even one man interrupts the smooth working of the system, and it only requires a smart superintendent to find out where the hitch has occurred and take steps to remedy the same. Where this system was used the men seemed to

be fairly well satisfied with the conditions under which they worked. The hours worked in the States Leather Industries are for the most part 60 per week; in a few cases, 59 hours. In one firm, where over 75 per cent of the employés were on piecework, I believe the hours were 54, but this was an exception. In this country the hours vary from 54 to 57 per week, and in some cases they work 58½. The average wage earned in the States I take to be about 45s., whereas in this country I should say it is 14s. or 15s. less. The wages earned are not so easy of comparison. In England there is a great gulf between the wages of the "labourer" and the "skilled" worker, which does not exist to the same extent in the States. "Helpers" (that is men who do the jobbing work, whom we term labourers here) in the States receive from 33s. to 37s. per week. In England they receive anywhere from 16s. to 25s. per week. In the States, of course, the helpers do more work for this amount, as they must keep their skilled workers well supplied with material and also remove the goods when finished. I am of opinion that the British labourer in the leather factory would be glad of the opportunity of doing more work, providing, of course, he received a corresponding increase of wages. I think our skilled workers equally as well off as the American employé—taking into account the hours worked and the high speed they work at in the States. The cost of living for a working man I take to be about 10 per cent higher than in England. Of course, I am reckoning the standard of living to be rather higher than in our own country, which it undoubtedly is. Most wearing apparel is dearer than ours, with the exception of certain grades of ready-made clothing. Rent, too, I believe to be higher than here, and all these things combine to reduce the value of the wages earned in the States. At the commencement I stated I was only shown around most factories in a superficial manner. My report seems to run somewhat on the same lines, but I give it as clearly and plainly as I am able.

In conclusion, I must again state that I am of the opinion that we cannot compete with any certainty of success with the States for the markets of the world, as with their great natural advantages they can undersell us; but in these days of chemically-tanned goods, and the use of extracts, I do not see why we cannot successfully compete with them for the trade of our own country. In my humble opinion the fault does not lay with the British workman in the leather industry, but rather with the employer. He sticks too much to the old ideas. He does not keep pace with the times. He produces a good article, but that is not all that is required. Let him remodel and refit his factory on an up-to-date plan, get more in touch with his employés, provide them with a shop that has a degree of comfort about it, and give them a wage that will enable them to live at a somewhat higher standard than at present, even if he asks them to do more work for the same; then the time may come when we shall get nearer holding our own with our cousins over the seas. If some of the employers of this country would pay a visit to some of the up-to-date factories of the States, I feel sure they would learn something that would compensate them for the expense incurred.

Answers to Questions, by Mr. G. J. LAPPING.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Yes; and I believe education equips any lad better for his future work.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. Do not care to make any suggestion.

Questions.	*Answers.*
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. None, except that those in authority should provide means of free technical instruction to workmen.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Mostly 60 hours per week—about four hours per week more than in England.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. The American workman produces more in an hour on the average.
6. Is the system of piecework (pieee rates or time piece-rates) largely used in America?	6. Yes.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. Of benefit to both, but I think the advantage is on the side of the employer.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No, I do not think so.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. Have no reliable data on this matter.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) I think the men do a fair day's work. (*b*) As a general rule, I think it does.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Cannot give any opinion on this.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. They are taken as a matter of course.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes; employers encourage these matters.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) I believe this is the case, but it is chiefly owing to the capabilities of the machines themselves. (*b*) Do not think there is any unfair advantage.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. No. The system of organisation in workshops prevents this; consequently I cannot compare the two.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. Yes; I think so. I think him rather in advance of the English workman in this respect, partly owing to education, and chiefly because the English worker has never been allowed to take the initiative and do work on his own responsibility.

Questions.	*Answers.*
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Have no knowledge of this.
18. Are the American employers more accessible to their men than English employers?	18. Yes; I think a great deal more so.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes; I think there is.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Not as a general rule.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes. (*b*) Yes. (*c*) No.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. I cannot give the figures, but am of the opinion that it is due to both causes to a very great extent.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. I think where labour-saving machines are used English employers should copy America, and obtain the very latest and most up-to-date appliances.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Yes. (*b*) About 10 per cent higher.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Yes. They wear their clothes of the better sort more often than the English working man. (*b*) With the exception of certain grades of ready-made clothing, I think the price from 10 to 15 per cent higher than in England.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) I do not think so. (*b*) It is higher than in England. (*c*) I have no knowledge of this.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. About 45s. Should say about 15s. more than average in England.

Questions.	*Answers.*
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. The value of the American wage is a very small percentage higher than in England, taking all matters into consideration. In the leather industry that is; I cannot answer for the whole of the trades.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. I do not think so.
30. If yes, does he *in fact* save more, or not?	30.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. Not so much as in England.
32. Is the American working man more sober?	32. I believe, taking him all round, he is more sober. I think the climate has something to do with this.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I believe this is so.
34. Is it true that the American workman is thrown out of work at an early age?	34. In many industries, yes.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) Yes. (*b*) I think it due both to the overstrain and less healthy climate.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36 and 37. I am not in a position to answer these.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. I do not consider the general conditions of life better in America than England.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. Yes, to the extent of endeavouring to bring employers and employés together in conference when disputes are threatening.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. Yes, on modified lines.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. My answer to this, as far as I can go at present, is in my signing the paper at New York.

G. J. LAPPING.

Mosely Industrial Commission.

Report by Mr. H. R. TAYLOR, L.C.C., of the Operative Bricklayers' Society.

The form, method, and class of construction, the materials used, and the class of work produced are so widely different from that generally obtaining in this country, that only those having a thorough knowledge of building construction, and especially of brickwork, can at all appreciate the difficulty I have in framing this report without running the risk of being misunderstood. In order, however, to minimise the risk as much as possible, I have avoided the use of technical terms, except where their use is absolutely necessary to illustrate my points, and whilst I cannot hope to make my report sufficiently explanatory to suit all my readers, I nevertheless do hope to convey to them a clear idea of the results of my investigations in connection with the industry I had the honour of representing on the Mosely Industrial Commission.

Being one of the number who proceeded to the U.S.A. *viâ* Montreal and Toronto, I had an opportunity of seeing those two cities. In Montreal most of the larger buildings, such as hotels, churches, factories, and offices, are faced with granite or native stone with rough brick backing. The smaller buildings in the city which have been constructed almost entirely of wood are gradually disappearing, and being replaced by others of a far more substantial character, although in the suburbs timber houses and villas distinctly French in style of architecture are still being erected, many of them being exceedingly pretty. In Toronto nearly all the old wooden shops, shanties, and stores have been swept away, and the city entirely remodelled; fine, broad, straight thoroughfares have been laid out, electric tramways constructed through most of them, fine palatial buildings have been and are still being erected on every side, most of which are constructed of brick and native stone, and are of much better class and finish than those in Montreal. Building is also proceeding apace in the suburbs, where, in addition to schools, colleges, and other semi-public buildings, a large number of villas and workmen's houses are being erected, and there is every evidence of rapid development and increasing prosperity, and, although a large proportion of this work is of a more or less speculative character, it is nevertheless very well done. The Municipal Buildings are a splendid pile, and do great credit to the city, the design and materials are of a first-class character, and most of the workmanship in masonry, mosiac, marble, brickwork, and joinery is of a high standard. The buildings are, in my opinion, more imposing, convenient, and beautiful than the Glasgow Municipal Buildings; the cost, the city engineer informed us, was two-and-a-half million dollars, and eight years were taken in building them.

In the United States all the buildings I saw in course of erection could very well be classified or grouped under three distinct heads:—

Class 1. Representing those where the steel skeleton or framework is first erected.

Class 2. Representing the smaller and less pretentious type, more nearly resembling the buildings in this country.

Class 3. Representing the still smaller type, chiefly suburban, and consisting almost entirely of house and villa buildings.

Under Class 1, after the necessary excavations have been made and the foundations put in, the steel skeleton or framework is erected, often to a height of twenty or thirty floors, the girders and joists for the floors, landings, stairways, elevators, and roof being fixed complete. The bricklayers and masons then appear on the scene and construct the necessary fronts, exterior and interior walls with granite, stone, marble, terra-cotta, or brick, as the case may be, the framework already erected being utilised both for scaffold and hoisting purposes. Nearly all this type of building is erected from the inside, and the work done overhand, whether it be fixing stone, granite, etc., or laying bricks, and it is not uncommon to see several gangs of bricklayers and masons at work on as many different floors; indeed, it is quite possible with this form of construction to start building on each and every floor at the same time, finishing at the first floor and the roof simultaneously. By doing this, however, the saving of time is about the only advantage gained to the contractor or his client, or both. The workmen are naturally subjected to many more risks and dangers when others are at work above their heads, especially when we bear in mind that this system is more conducive to rushing and scamping than any other, as a certain amount of rivalry is frequently engendered between the various groups of workmen or their foremen, or both, engaged on the various floors. It must also be borne in mind that very little plumbing, levelling, or setting out is required, a great deal of the brickwork being mere filling in between stanchions, girders, angle irons, etc., and it therefore follows that the less time occupied in any or all three of these operations leaves more time for laying bricks; in other words, the output is largely governed by the number of plumbing places or angles in the work performed—the more there are the fewer bricks can be laid; the fewer there are the more bricks can be laid.

The second form of construction, *i.e.*, where the constructional steel work is not first erected, more nearly resembles our own, although most of this work is also done overhand. The flanks or party walls are frequently run up first and toothed in blocks of four or five courses each, instead of each course, the latter being the practice adopted here in order to secure a proper bonding with the other portions of the building to be erected afterwards. The girders and joists are built in, and then in some instances an independent scaffold, generally of a very light and flimsy character, thrown out on each floor to erect and sometimes merely to finish and clean down the front, but as the latter is considered to be more or less a superfluity it is not always done. In the Cleveland district I noticed several blocks of flats being erected in concrete by means of the ordinary shuttering, but I was informed that this mode of construction had not proved the success anticipated by those who were trying the experiment.

The third form of construction is that adopted chiefly in house or villa building in the suburban districts, although a large number of these buildings are still being erected consisting almost entirely of wood. Where brick, stone, or terra-cotta is used for facings the system frequently adopted is to erect a wooden shell, the scantling used of course depending on the size of the house, weight of roof, etc. This is boarded-in generally on the outside, and the mason or bricklayer builds the walls on the outside, forming merely a veneer sometimes only four-and-a half inches thick, this depending entirely on the height it has to go. Where bay windows occur it appears to be a common custom to build the bays and piers without using moulded or cut squints, the ordinary bricks being merely butted against each from the external points, thus forming a toothing of dog's-tooth shape up each side of the bays, a thing I have never seen done in the worst kind of jerry building in this country, and an evidence of the slipshod nature of this class of work. The scaffolding generally used on these buildings consists of trestles and boards, tier above tier in order to reach the height desired.

No architect or engineer worthy of the name would permit any one of these systems to obtain in this country, as in all three there is no pretext and no attempt to properly bond the brickwork. Nearly all the faced work consists of stretching courses only (merely a veneer), although on the rough and interior walls of any thickness there is usually one course of headers or bonders to every five or six courses of stretchers, instead of English bond consisting of alternate courses of headers and stretchers, or the Flemish bond consisting of headers and stretchers laid alternately in each course—either of these systems (the English for preference) securing the proper bonding of the brickwork, both longitudinally and latitudinally. Flushing up or grouting—*i.e.*, filling in the interstices with mortar of a more or less liquid nature, in order to obtain greater solidity of the work, is very seldom practised.

Although I saw several very excellent specimens of facework it was all of a very plain and unornamental character, owing to the fact that designs containing enrichments or embellishments are almost invariably executed in granite, marble, stone, or terra-cotta, the latter, both plain and glazed, being more extensively used every year. Gauged work is conspicuous by its absence, owing, I was informed, to its great cost, but, nevertheless, I am convinced that given the time, materials, and opportunity, the American would be able to turn out work as good, durable, and as well finished as the average workman here.

The partition walls, which are not intended to carry any weight beyond their own, are almost invariably built of rough terra-cotta blocks, partly hollow, and about 12 inches square, and four to six inches thick; the fireproof floors generally consist of the same material, made on the same principle, and all fixed or built by the bricklayers.

The bricks generally used are somewhat smaller than ours, although some faced work consisted of specially made bricks, some 12 and some 14 inches long, four-and-a-half inches wide—some one-and-a-half and some two inches thick—all very well burnt, very hard, and fairly true, making very good work where carefully done.

In the Post-office at Buffalo there is a fair specimen of glazed work measuring five courses to the foot; and in the Natural Food Company's factory at Niagara there is a good specimen of glazed work in the interior, and a very good specimen of external faced work, consisting of well-burnt cream-coloured pressed bricks of very even colour, good shape, and regular size, but all stretching courses. Indeed, the only buildings I saw in English or Flemish bond were two in number, and both in New York.

The system of sub-contracting, as we understand the term, is far more prevalent in the United States than here, although it differs somewhat, inasmuch as the sub-contractors (at least as far as the brickwork and masonry is concerned) supply the materials in addition to the labour, whilst here the term may and frequently does apply to those providing labour only. The custom generally obtaining in the United States is for the general contractor (where one is employed) to sublet nearly the whole of the work to what are termed master masons, bricklayers, plasterers, etc., as the case may be, who provide both labour and materials for the execution of the work.

In measuring brickwork the custom here is to calculate by the rod or cube, but in the U.S. it is calculated by the 1,000 bricks, due allowance having to be made for the various proportions of faced, rough, or other work. With regard to the faced work, a system was introduced there some years ago of subletting the labour only of this class of work, known as front-lumping, but the system so completely split up and demoralised the trade, causing endless friction and numerous disputes, that, consequent on the opposition of the workmen's organisation, this pernicious practice

was abandoned. The main reasons for opposition were that a large number of those in the trade, and especially those learning the trade, never had an opportunity of becoming thoroughly skilled craftsmen as they were confined to rough work only. In addition, in the building trade experience has taught the workmen that the less subdivision of labour the more continuity of employment, and this every intelligent worker desires and endeavours to obtain, as casual intermittent labour is one of the greatest curses of the whole industrial system.

The proportion of faced work to rough work is exceedingly small, but I hope as time goes on the demand for faced work will increase, and that the architectural designs in brickwork will assume a more artistic form than heretofore, and that more consideration will be given to the quality of the work executed, thus giving the workman an opportunity of taking some pride in his craft, and in excellence of character and finish. There is no doubt, in my mind, that up to the present time the demand has been mainly for "cheap work, and nasty," although I am of opinion that at least some of the work now being executed is better done than the work of a few years ago. For instance, I saw the party wall of a comparatively new building, which had been exposed by the demolition of the adjoining premises, and it was certainly one of the worst specimens of work I have ever seen, joint upon joint, in many cases, for eight and nine courses at a time, very few cross joints put up at all, and in several places no mortar had been used to even bed the bricks which were laid in dry. I was informed that that class of work obtained a few years ago, and when I suggested that probably in those days bricklayers were employed to lay *bricks*, not mortar, my informant quite agreed.

If this class of work has been carried on to a very large extent in the erection of the "sky-scrapers" of New York, Chicago, and other large cities, it will not be many years before they will require re-building. That I am not alone in my adverse criticism is proven by the following extract from the report of the Tenement House Commission, of New York, in 1900: "The Commission would also call attention to the evils resulting from the inferior grade of workmanship employed in many tenement houses. In the ordinary tenement house the Commission finds that the work is generally of a low grade, and that such property is apt to deteriorate in a very short time. The result is not only a loss to the investor, but a loss to the tenement house dweller. It means discomfort, and also means that he must pay higher rents to meet the increasing bills for repairs, which each year grows greater." This, of course, refers to all branches of the building trade, and from what I saw myself I quite agree with the Commission; but time and the workmen themselves will alter and rectify this condition of things, as they are already beginning to realise the many evils arising therefrom. Severe as is my condemnation, I wish it to be clearly understood that the employers and the employed are not so much to blame as the custom and system which makes these things possible.

In attempting to make comparisons as to output, it must be borne in mind that this cannot be done equitably without taking into consideration the whole of the factors which govern the amount of work produced, the chief of them being the class of materials used, the conditions under which the work is performed, and the class and stability of the work produced. In other words, if the average number of bricks laid per day by the workmen in America is compared with the average number of bricks laid per day by the workmen in this country, the conditions not being equal, the comparison would be an unfair one, as the class of work produced in the two countries is not at all comparable—because, as I pointed out before, the proportion of faced work in America is infinitesimal compared with that produced in this country; and I am quite certain that if the American workman was called on to produce the same class of work under the same conditions as regards the number of angles, the bond, perpends, flushing and grouting up,

selection of material and clean finish, he would not be able to produce more than the British workman, if as much. That the average output (in bulk) of the bricklayer in America is greater than the average output here is in my opinion correct, but to compare two such entirely different classes of work would be obviously unfair and misleading, although I have no doubt there will be some captious critics, either incapable or unwilling to recognise these facts, who will merely compare the respective outputs without considering the class or kind of work—whether it be gauged, glazed, faced, or rough; whether there be two quoins or plumbing places, or twenty; whether it be well bonded, durable work, or whether it be shoddy; whether it be built for a day or for all time. But, even though they refuse to consider any of these points, there is, at least, one fact they cannot ignore when making comparisons: in comparing the work they must necessarily compare the wages also, and it will then be discovered that the bricklayer in America receives a wage ranging from two and a quarter to three and a half times the highest wage paid to a bricklayer here, the highest rate in England being 10½d., or 21 cents, per hour, while the lowest wage paid in any of the towns and cities I visited was 45 cents, or 1s. 10½d., per hour at Niagara, and as high as 75 cents, or 3s. 1½d., per hour in New York; whilst for tunnel or sewer work the recognised rate is 75 cents per hour, or 25s. per day, in Niagara and Cleveland districts, and as high as $9, or £1. 17s. 6d., per day of eight hours in New York.

After considering the whole of the facts and circumstances relative to the question, I am convinced that the bricklayer here gives better value for the low wage he receives than the bricklayer in America gives for a much higher wage. The one gives a smaller quantity but better quality for a low wage; the other gives a larger quantity of lower quality for a much higher wage.

With regard to technical education, I regret to say that in America very little, in fact scarcely any, attention has (at least up to the present) been paid to the efficient technical training of the workmen, although in the apprentice clause of the working rules of the Bricklayers and Masons' Union, provision is made for the apprentice to attend a public school during January, February, and March of the first years, and to attend a technical school during those months in the last year of his apprenticeship. This provision of itself shows that both employers and workmen are becoming alive to its necessity.

At present neither the State nor the Municipality makes any grants or provision for this purpose; consequently the few technical schools that do exist are run by private enterprise, and nearly all beyond the reach of the workman. The only classes I could discover where building construction and kindred subjects were taught were organised and run by the Young Men's Christian Association in several of the cities I visited; indeed, the only institutions I saw where a good technical training could be obtained were the Armour Institute in Chicago, where the training is wholly confined to chemistry and engineering, while the Cooper Union in New York is run on much the same lines as our Polytechnics here. The manual training classes are of little use in themselves, as the only tendency is to produce amateurs, and not workmen; but as many of the unions have this question now under consideration, I have no doubt but that great progress will be made in this direction in the very near future. The *Bricklayer and Mason*, the very excellent official organ of the above union, is doing splendid work in this direction, as it devotes a good portion of its space to technical subjects connected with the trade, and publishes explanatory diagrams, together with a mine of useful information, in nearly all its monthly issues.

The system of apprenticeship obtains to a much larger extent in the United States than it does here. The apprentices are controlled by a joint board of employers and workmen and by the union; they are bound for three or four years as the case may be, and registered as juvenile

members of the union. On the completion of their term (if competent) they become full members, but if they are adjudged incompetent they must be bound for another year, and if at the end of that period they are still adjudged incompetent they must leave the trade and try something else. It should also be noted that the union will in no way countenance any apprentice breaking his contract with his employer until the whole matter has been discussed and sanction given by the joint board, and in the event of an apprentice being unable through the death or failure of his employer to complete his term with him, the union makes arrangements with another employer for the completion of the term of apprenticeship.

A joint board of employers and workmen exists in nearly every district, and working agreements are entered into from time to time, and no strike or lockout can take place until the subject of the dispute has been laid before and been adjudicated on by the board, which can be summoned at any time on the shortest possible notice; in addition, most of the boards have regular meetings when all questions of interest to the trade are considered and discussed. These meetings certainly conduce to better understanding and a more friendly spirit and feeling between employers and workmen, and disputes which might otherwise develop into serious ruptures are generally, indeed almost invariably, avoided, which is certainly to the advantage of both sides.

Old men in the ranks of the bricklayers and masons are conspicuous by their absence. One of the rules of the trade union, which reads: "Any member of this union who may become unable, through accident or otherwise, or who shall have attained the age of 55 and feels that he is not able to command the regular rate of wages, shall apply for a superannuation card," thus permitting such members to work for any wages they can obtain, apparently implies that men break down somewhat earlier in the United States than they do in this country; in fact this appeared, as far as I could judge, to apply not only to the building industry, but to every other. What becomes of them when they become permanently incapacitated it is quite impossible for me to say, and I can only surmise that they either become dependent on their relatives or friends, or drift into the workhouse or asylum, or die.

Most of what we understand as unskilled labour is performed by foreigners and blacks, this being especially noticeable on the construction of the Lackawanna Steel Plant on Lake Erie, where many hundreds were at work excavating, concreting, pile driving, etc., and on the construction of the new subway under the main streets of New York, where nearly every foot of the excavation is through solid rock, and consequently has to be blasted.

A large number of the bosses, or foremen, on the various buildings in Chicago, Pittsburg, Philadelphia, New York, and in most of the large cities, are Britishers, so evidently America gets the advantage of the technical education we give our young workmen. But what impressed me even more was that in all the large factories, workshops, and other establishments, the great majority of the managers, heads of departments, and foremen were all very young men indeed for the very responsible positions they held, but this was explained to me by a manager, who, in reply to my inquiry as to when and where these young men acquired the necessary experience for their positions, said, "Well, you see, it isn't experience we want, but 'go.'"

The abolition of the piecework frontlumper, and the system of having labourers to dump the mortar on the work; the introduction of the system of apprentices, and insistence on their education and fair treatment by the employers on the one hand, and on their own industry and good conduct on the other; the formation of conciliation boards, consisting of equal numbers of employers and workmen; the terms of preamble to the constitution of the Bricklayers and Masons' Union—all prove conclusively (at least to my mind) that our fellow-workers on the other

side of the Atlantic recognise their responsibilities and their duties to their employers as well as to themselves, and their class as well as their craft; and there is every reason to believe that in the very near future they will still further improve the status of the workmen in addition to raising the standard of their workmanship.

Much as I admire our fellow craftsmen in America, I should be sorry indeed to see American methods of building construction (especially as far as brickwork is concerned) adopted in this country, because if they were the workman would be subjected to more risks to life and limb, with little, if any, chance of compensation. Technical knowledge, training, and skill would be at a discount. All that natural pride the real craftsman takes in the strength, durability, and finish of his handicraft would be extinguished and destroyed; all the years of struggle and work we have had to raise the standard of workmanship to its present high standard would have been in vain, and all would be sacrificed in the interests of present-day utility. At the same time I am of opinion that the employers in this country would do well to follow the example set them by the employers in the United States, by keeping in closer touch with those in their employ, and meeting them on terms of equality, by forming conciliation boards or branches of the Civic Federation, by adopting the system of apprenticeship and the eight hours day, and last, but not least, by paying the same rate of wages that are paid in New York.

Answers to Questions, by Mr. H. R. TAYLOR.

Questions.	*Answers.*
(a) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1, 2. No. The American lad has not the same facilities to obtain a good, sound technical education that our lads have in this country.
2. If yes, what changes would you suggest in the English system of education for the working classes?	
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. Yes. Employers should give facilities, and insist that their apprentices should attend technical schools.
(b) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. The longest hours worked in America are 48, and the shortest 44, per week.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. More; but the work is of a different character, generally much rougher.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6, 7, 8, 9, 10. Do not apply to my trade
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	

Questions.	*Answers.*
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. I have no knowledge.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12, 13, 14. Do not apply to my trade.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15, 16. English workmen, as a rule, have far more overlooking than is necessary; consequently the cost of the work is higher, for which the workmen generally get the blame.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. I cannot say.
18. Are the American employers more accessible to their men than English employers?	18. To a large extent, yes.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. They certainly have a wider field.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In some instances, yes; in others, no.

Questions.	*Answers.*
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Those I have seen, yes. (*b*) They are better managed. (*c*) As far as I could judge, no.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. Where the output is greater, I am of opinion it is due to the better organisation of the factory and better treatment of the workers, but certainly not to longer hours.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. The provision of more light, more floor and air space, and of baths, dining-rooms, bicycle stores, etc.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) I cannot say. (*b*) Somewhat higher.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) On the whole, yes. (*b*) Higher.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) No. (*b*) Higher. (*c*) I have no means of judging.
27. How does the average wage in your trade in America, expressed in money, compare with the average wage in England?	27. Much higher. The lowest wage in England is 13 cents per hour, and the highest 21 cents, whilst the lowest wage paid in any of the towns I visited in America was 45 cents, and the highest 75 cents per hour.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. My trade, in addition to its being casual, is almost entirely outdoor, and consequently the average income is governed largely by the time lost through stress of weather, but I feel I am well within the mark by saying the American bricklayer is quite 50 per cent better off than the English bricklayer.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. I cannot say.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No.
32. Is the American working man more sober?	32. I saw no signs of drunkenness in the streets.

Questions.	*Answers.*
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I have no means of knowing.
34. Is it true that the American workman is thrown out of work at an early age?	34. Judging from appearances, yes.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?	35. (*a*) Judging from appearances, yes.
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	(*b*) I cannot say.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36, 37. I cannot say.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. I am not sufficiently conversant with the whole conditions of life in America to venture an opinion.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. Yes.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40, 41. Yes. A similar thing is here now on a small scale, and should be extended.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	

H. R. Taylor.

Mosely Industrial Commission.

Report by Mr. M. DELLER, of the National Association of Operative Plasterers.

Having at various times heard from those of our craft who had worked in America that the American plasterers did a great deal more work than we on this side were in the habit of doing, and failing to obtain the knowledge from them as to how it was accomplished, it was only natural that I was pleased to find myself amongst those selected by Mr. Alfred Mosely to visit the American continent, and the readiness with which I (upon receiving the consent of the members of my association) accepted his invitation to be one of his commissioners may on that account be pardoned. My desire to learn how it was done was intensified by the knowledge that many of our own countrymen not being able to hold their own here were able to succeed in America, coupled with the fact that those who had stated they on the other side were able to do so much could not do it when they returned to the old country. I must confess to being somewhat sceptical, but yet quite prepared to accept their statements and vouch for their truthfulness did I find that on my investigations there was the slightest ground for them.

With this end in view I went on shore when we touched at Quebec, and spent some three or four hours in looking over the largest hotel in the place. Here I met with my first disappointment, for I found that the plastering was only of a second-rate character. The wages of plasterers in Quebec are probably the same as those paid in Montreal, which was our port of landing. There the plasterers receive $2. 52c. per day of nine hours (equal to 10s. 6d. in English money, or 1s. 2d. per hour). Here, too, the class of work would not bear comparison with that executed upon buildings of a similar size in England. At Toronto, where we spent a night and part of the next day, the work was slightly better, judging from what we saw in the City Hall and other public buildings visited during our short stay. The wages paid were superior to those at Montreal, viz., $3. 4c. per day of eight hours. Rents, we found, ranged from $16 to $30 per month. Food was quite as reasonable as at home.

At Niagara Falls we had more time to investigate as well as to see the wonderful works of nature. We made the acquaintance of members of the building trade, and by attending meetings of the Local Building Trades Council, and Trades and Labour Council, we were able to ascertain much that we wanted to learn. It was also my pleasure to visit the branch meeting of operative plasterers, where I gained my first insight into the methods of working. I was asked, amongst other things, could I cover ten yards of lath work with one hod of stuff. One can imagine great things in America, still it was without hesitation I confessed my inability to do the task set me, when they boasted that one of their number had accomplished the feat; and the man whom they referred to came forward at the close of the meeting and modestly said he had done it, adding, upon my questioning him, that his "boss" told him that was all the stuff he would allow him to do the job with. You have the statement as I had it, and can digest it at will; yet, when I say I saw work painted that had not the angles cleaned out, and the face no smoother than our ordinary floating, it may help you to swallow it. This they call sand-finish, and it prepared me for the statement that a plasterer was supposed to cover some 150 yards in a day of eight hours, for which he received $3. 20c. There was no limit to the number of apprentices, who where admitted up to the age of 18. Workmen's dwellings containing six or seven rooms, with hot and cold water, could be obtained for $12 or $13 per month.

At Buffalo, the class of work done was very little better than that at Niagara, and the quantity expected slightly less. One of the workmen's officials declared that a plumb rule was seldom if ever used, and that the employers invariably insisted upon either adulterating the better material or substituting altogether inferior material to that contracted for. The Post-office was a fine building, with plenty of plastering of fairly good design, but executed in such a manner as to make it a standing disgrace to the trade, and I fearlessly assert that no British architect or clerk of works would pass such work. My colleagues had in conversation looked upon my previous statements with the eye of a sceptic, so I took the opportunity of pointing out the defect, so that they, if necessary, might corroborate me in this. This work was sub-contracted for, which will probably account in some degree for the inferior workmanship. This theory is strengthened by the fact that the City Hall is a much better job, and was done without the aid of the sub-contractor. Throughout the city two-coat work prevails. Plasterers' wages in Buffalo are $4 per day of eight hours, or 50 cents (2s) per hour. Overtime is prohibited except in very urgent cases, and then only worked upon payment of double time. Overtime commences one-and-a-half hours after the usual time for stopping, between which no work whatever is done. The apprentice system here is more stringent, as only two are allowed in each firm, irrespective of the number of journeymen employed, but they can enter the trade up to the age of 21 years, and must serve and be legally bound for three years. Small wonder at the class of work done under such a system.

Cleveland was the next city visited. Here, too, was found the same class of work as before met with, the bulk being of the sand face. Here an interesting statement was made by a master plasterer, viz., that the plasterer from the old country was the better workman after being in the city a month; by better, he meant could do more than the native. Another statement was that the architects preferred speed to quality; everywhere they think only of to-day. Fine-looking buildings, I was told, were often pulled down after a few years to make room for larger blocks and sky-scrapers. The prices paid for the work (2 coats) are about the same price as used to be paid for similar work in this country; yet they can and do pay the journeymen $4 per day, or 50 cents per hour, 100 yards of browning (floating) being, so the employers stated, considered a fair day's work. The hours worked are eight per day. Apprentices may start in the trade up to 18 years of age, and must be legally bound for four years. No employer is permitted to have an apprentice until he has been in business one year, and must be in business three years before he can take a second. No employer may have more than two apprentices at any one time, irrespective of the number of journeymen he may employ. Rents range from $10 per month for a four-roomed house to $18 for one with nine rooms, clear of rates. I was much amused to find even the shoe-blacks and news-boys with their unions, and had the pleasure of seeing the card of one little fellow in knickers. The trade union label here prevails upon nearly all articles of production.

Chicago, our next point, presented a slight improvement in the finish of the work, but still left much to be desired from the point of view of one who has an interest in his craft and the importance of the city, the wages paid being $4 per day of eight hours, with an increase to $4½ in 1903. Here, again, we found a restriction upon apprentices to the extent of confining an employer to two, irrespective of the number of journeymen he may employ, and he must be in business one year before taking one apprentice, who may be 18 years of age, but must serve four years. Two-coat work prevails, and much about the same quantity is expected as in Cleveland. Rents range from $15 to $25 per month for a six-roomed house with bath; or, on an average, $16 per month. A notable feature, we were informed, prevailed, viz., that a landlord is not permitted to give a notice to his tenant to quit during the months of January, February, and March. Some friends

whom I met estimated the average cost of living for a family of five children, with husband and wife, at $20 per month. Board and lodging for a man and wife, $10 per week. Potatoes may be bought at 10 cents per peck, butter at 30 cents per lb., and flour at $3½ per barrel of 196lbs.

A visit was made to Dayton to look over the National Cash Register Works, but little or no opportunity was found to investigate the building industry. We were, however, able to learn that plasterers' wages in the city are $3. 20c. per day of eight hours, the class of work being, from what we could gather by observing the places we visited, the same old style, two-coat, and rough at that. Rents range from $12½ to $15 per month for houses of about five rooms.

At Pittsburg, the home of the Carnegie Works, the same order of things prevails as mentioned in respect to other places previously visited. One of the great show places is Frick's Buildings, a block of 18 stories high, said to have been erected and occupied in six months from the start. It is certainly a creditable job, but I venture to think that even in sluggish England builders could be found to equal it, especially when one considers that the building is of the steel-framed order where all is prepared beforehand, and the building proper can be proceeded with from each floor at one time when the frame is up. Though it must be admitted such a process is conducive to untold accidents, this does not appear to affect the New World, as no Liability or Compensation Acts exist. In going round the city I had the misfortune to discover some slum property that would even make some of our own look, comparatively speaking, like palaces. Fancy a court, to get through the entrance to which one had to walk sideways; this was my own and companions' experience. No wonder millions of dollars are made out of such places, when one learns that the houses in the neighbourhood of which I write are let at from $30 to $40 per month. Decent five-roomed houses may, however, be obtained in the outskirts at from $14 to $15 per month. Here the plasterer receives $4 per day of eight hours. Apprentices may start at the trade at any age, but no employer is allowed to have more than three at any one time. A notable feature of the relationship between the employer and workman in the plastering trade in Pittsburg is that the employer is held responsible for any fine the union may put upon one of its number, the employer stopping so much per week from the man whilst in his employ, which he hands over to the plasterers' business agent. In some cases the fines thus collected amount to the sum of $50. Here, too, there is no room for old men, a responsible official informing me that a plasterer at 52 was unfit for work.

At Philadelphia we found that a few jobs were finished three coats—two, however, being the prevailing class. Wages paid for an eight hours day were $3·60 cents, or 45 cents per hour, there being no limit either to output or apprentices. Rents range from $10 per month for a four-roomed house with bath and hot and cold water, and for a six-roomed house with bath, etc., from $12 per month. Board and lodgings for a single man are about $4½ per week. It is also possible to obtain two-storied houses adapted for two families at from $10 to $12 per month Clothing ranges from $15 per suit ready-made, to $20 for the same material made to measure.

Washington received a flying visit for the purpose of having an audience with Mr. Roosevelt, President of the United States of America. Even in the room where he received us the plastered walls were very poorly finished, although it is only fair to say that some decent work was to be found in the Congress House and Library. Having a few hours to spare at night, I paid a visit to one of the theatres, and had the mortification of sitting under a ceiling that had simply one coat on the laths. They, however, tried to make up for the deficiency by plenty of whitewash—and this in the capital. Plasterers' wages here are $3. 60c. per day of nine hours.

Our last visit was to New York. Here I found some old friends who, by instruction of the

New York Branch of the Plasterers' Union, took me round the city and through some of its buildings in course of erection and being plastered. The work was both good and bad; the latter could not be worse, but here let it be said that the good was on a par with our best. I rejoiced to find at last some real plastering, it being the first seen during my stay, either in Canada or the States. When I say that Keen's was used in abundance it will be readily conceived that rushing could not be the order; yet the hampered conditions under which they work, the heated atmosphere, etc., made it anything but pleasant. Enriched cornices abounded on such jobs as the Majestic Theatre, Hanover Bank, Mutual Life Insurance Offices, and the Stock Exchange; in the latter there is a room 112ft. by 140ft. spanned by girders in each of which there are 220 tons of iron, the ceiling taking 350 tons of plaster. Here I saw a hanging scaffold covering the whole room, 70ft. from the floor; the like I never saw before, and it really does credit to the architect who I understand designed it, as also to those who put it up. Apart from the novelty of the thing, it was really the best scaffold I saw throughout the whole journey.

Here, in spite of the lockout to break down the regulations imposed by the Union to prevent the rushing for which America is (by repute on this side) noted, I was assured that after a fortnight's resistance the men returned to work under even better conditions than those obtained prior to the lockout, obtaining an advance of a half-dollar per day upon the old rate, to take effect on the 1st of July. It was, however, quite a surprise to learn that in their new conditions plasterers still have to be ready for work when the whistle blows upon any floor up to twelve. Fancy climbing twelve stories in your own time! That is one thing even an English employer would scarcely ask his men to do. Plasterers complain that the rushing, at least in New York, is done chiefly by "new chums" from this country, Scotsmen being the greatest delinquents in this respect. I failed to observe the great rush at work that I expected to see. Upon inquiring at one job the time taken to complete the work, and comparing same with a similar amount in this country, I found that in many cases which came under my personal observation—when at work at the trade—we did equally as much. However, there is no denying the fact that on the whole more ground is covered by plasterers in America than at home, but I question whether more labour is expended in the production than is done here. To use an Irishism, the reason why they do so much more is that it is not more than half done.

The wages paid to plasterers in New York are, at the present time, $5 per day; in Brooklyn and New Jersey, $4½ per day. Apprentices may enter the trade up to 18 years of age, and must serve four years. Their wages are fixed at the following rates:—for the 1st year, $6 per week; 2nd year, $9 per week; 3rd year, $12 per week; and 4th year, $14 per week. No employer may have an apprentice until he has been in business one year; when he has been in business two years, he may have two apprentices, and when in business three years, three apprentices. No employer may have more than three at any one time except in the last year of the eldest, when a fourth may be taken providing always that the fourth is the son of a plasterer.

Overtime is prohibited, except in cases of emergency when double time is paid; and when sent to work in the country, all expenses are paid including board and lodgings. Time taken in travelling to and fro is also paid for. No fibrous cornices or ceilings are recognised, and no work is allowed to be fixed that can be run or worked up in position.

The workshop of Klee Bros., modellers, was kindly thrown open for my inspection, the employer acting as guide; the appointments of this, together with the work produced, are in many respects superior to those found in England.

Houses here are not to my liking, as some I saw were merely flats of five rooms, one running into or opening into the other, thus doing away with the privacy held so dear in British

households. The following are the rents for this kind of house :—

1st floor, $17 per month.		3rd floor, $15 per month.	
2nd ,, $16 ,,	,,	4th ,, $14 ,,	,,

Size of rooms, 12ft. by 14ft.

The ground floors are invariably shops. There are no back yards, immense poles being erected as high as the house for attaching lines to, to dry the clothes on washing day when done at home.

Speaking generally of the work and workmen in the trade, I can only say that the work is far and away behind that executed in England, and the hampered conditions are anything but pleasant to work under. Were I an employer I should make them better, feeling sure that more work would be the result. The scaffolding was the most crude I ever saw or could have imagined. Poles and ropes are entirely ignored, and the uprights are quartering (called scantling in some parts). If these were not long enough, another piece was put on the end, and the two were merely fastened together by a piece of slab nailed on the one side. On some of those I ventured upon the boards were up and down, so that one had to use much care in walking to prevent a stumble. I was informed by some, when remarking upon these defects, that very few accidents occurred; others said there were plenty, but the Press did not report them, so that only those intimately acquainted with the victim, or dependent upon him for subsistence, were aware of the fact. I am inclined to believe the latter in preference to the former. Suffice to say it would be a case of extreme necessity that would induce me to entrust my life upon some of the flimsy scaffolds I saw—uprights as previously shown, stayed by strips no stronger in appearance than a fair slate lath.

In the constructional work—masonry, brickwork, etc.—all work is done overhand where it is possible to do so; where it is not, needles are thrust through the walls and the boards laid upon them, no attempt being made to strut them so as to strengthen them, and, when it is necessary to go higher, trestles are placed upon this preparation. I saw in New York City a scaffold built thus with no less than four tiers of trestles one on top of the other. Should the work to be done be below the needles, they simply nail some pieces of board upon the needles against the wall and at the extreme ends, with a piece at the bottom (forming hangers), and place boards through. Undoubtedly the building operatives in both America and Canada work under conditions much inferior to those at home, or even the rest of the American workmen.

Before we left the States a fire occurred at a Chicago Hotel, over twenty-three persons losing their lives, and at the inquest Coroner Traeger is reported to have said, "The fire undoubtedly was caused by the explosion of an oil-stove in the rear of the third floor. The building is very carelessly constructed, the fire escape is worthless, the rooms are outrageously small, and it is nothing short of a crime that such a building should have been used as a housing place for human beings." I only quote these remarks of the coroner to emphasise my former remarks as to the utter disregard of stability and human life.

It is with pleasure I leave this part of my observations upon that portion of the building trade I represented to say that there are undoubtedly some model employers and factories, also stores. Amongst these I class the Shredded Wheat Factory at Niagara, the National Cash Register Company's Works at Dayton, and Messrs. Marshall Field and Co. at Chicago. The first-named covers some ten acres of ground, the rooms being both airy and light. None are employed under 16 years of age, and then only with a certificate, the law being strictly carried out. Girls and women (unmarried) earn on an average $5 per week of 60 hours. Provision is made for all hands to store their bicycles, the females having theirs inflated and brought to the

doors for them, and they leave some ten minutes before the male portion of the employés. Lavatories and baths are provided for all hands, one bath each week being allowed each employé in the employer's time; more can be had, but must be taken in own time. This department cost the firm $100,000, the whole building costing two million dollars. The girls' dining hall is a room of 16 yards by 33 yards in dimension, supported by eight columns; it contains, above all, a piano. An auditorium is also provided, where free seating is allowed for meetings of the workpeople; it is also granted free to conventions being held in the city. The affable manager says all this pays. Here, then, is one lesson to be learnt by our visit.

At the National Cash Register Company's Works similar arrangements are made for the comfort of the workpeople, one free bath being allowed in winter and two in summer. When I say free, I mean in employer's time. None commence work for this firm below 17 years of age. Married women are also barred here, as at the Shredded Wheat Works. The wages are from $5 to $8 per week; the overalls they work in are found by the firm. The lowest wages paid to men are $1½ per day, and they rise to the position of managers by merit. Committees are formed from amongst the workmen, who deal with complaints, although a single workman may, if dissatisfied, then appeal direct to the managing director. Holidays are granted and expenses allowed, providing they go away, the manager deeming such a course educational. Here, too, the workpeople are encouraged to make suggestions, for which prizes are granted to the extent of $600 per year. Three inventors are kept upon the works to work out the suggestions made; every employé is thus given an interest in the firm. Overtime is not practised, except in emergencies; when this is done free suppers are provided, no stoppage being made for the time thus taken up, and we were informed that no less than 1,320 such suppers had been supplied. A practical gardener is also engaged to educate the boys of the city in gardening—and from what the manager states, all this pays.

A similar system prevails in the store of Messrs. Marshall Field. Here, then, is a lesson for our British employers. I don't pretend to think that all this is done for the love of the workpeople alone—neither do the firms mentioned. They freely and openly admit that it pays them to do so. Compare this to our system. Did a workman make a suggestion to a British employer whereby his business would benefit, or even to his manager or foreman, what would be the result? The man would either be discharged or told abruptly that he was not paid to think, but to work. Contrast the great Carnegie Works with this. There, the gentleman who showed us over the place told us that no man could stand before the furnaces more than 15 years, after which he was consoled with a pension of 1 per cent upon his average earnings. Upon looking at the homes around Homestead one is struck with the impression that the principal shareholder might here find a good place to expend his surplus millions by improving the conditions of his workpeople and dwellers in the immediate neighbourhood of his works. I, for one, would certainly forego the pleasures of a donation from him for libraries in Great Britain.

Is the American workman superior to his English brother? My answer is, most decidedly, no. As a matter of fact, those holding the most prominent places in the States are either of British birth or parentage; certain it is the majority of the best plasterers I came across were such. In conclusion, I have no hesitation in saying it is not the British workman that is at fault, but the British employer. Whilst the American employer adopts all the latest in machinery, his British competitor works his obsolete machines until the output is almost nil, and then blames his workman. Again, the former allows plenty of breathing space for his employés, studies their comfort, and in any matter of disagreement deals with the recognised officials of the men's unions, whilst the latter invariably ignores all the latter points. I don't pretend to think that the American employer loves his workmen more than does the British employer, but he

recognises that to do all that which is mentioned pays, while the other does not. It is with the former a matter of £ s. d., with the latter a matter of dignity; which our experience in America goes to show will not assist in even keeping the place held by us at the present time. The only wonder is that we have held it so long.

Let me add my thanks to those employers whom we met in the course of our travels for the services rendered, and their willingness to open their works to our inspection; also to their workmen for their readiness to reply to our questions concerning their conditions.

Answers to Questions, by Mr. M. DELLER.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. So far as my experiences went as regards my trade they are certainly not, as no technical classes for the trade exist anywhere in the States.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. Covered by former answer.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. None; as at present, we in England are fairly well provided in this direction.
(B) RELATIONS BETWEEN EMPLOYER AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. The hours worked in America are some two hours per day less than those worked in England.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. The American workman in my trade undoubtedly covers more ground that we in England do, but the quality is very inferior.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. The system of piecework is practically unknown in the plastering trade; they work by either the hour or day.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employer? Does it give an unfair advantage to either side?	7. My experience on this side shows that this system is detrimental to the workman, owing to the employers cutting prices should one earn above the average weekly wage as stipulated by the trade unions affected.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. We are informed that the American employers do not cut down prices. They express themselves as pleased to pay higher wages, where the man by his skill and efficiency reaches a higher scale than that considered by the men's union to be a fair wage.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. We only learnt of premiums and bonuses being paid for suggestions of improvements in machinery, etc., which is, as far as I know, non-existent in England.

Questions.	*Answers.*
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. I saw no difference in this respect from the workers on this side.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. I have no information on this point.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Nothing to my knowledge has transpired in either country to lead me to either believe or think that workmen are adverse to improved machinery. This I, however, believe, that whilst in England improved machinery is used to cut down workmen's wages, in America it is used to increase them, and to save the men's labour.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes, as applied to America.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. *(a)* Yes. *(b)* It is for the benefit of both, as far as I know, but not being a machinist I am unable to give a decided answer.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. I never found any man who when treated fairly well by his employer in either country wanted any overlooking, that is to say a competent workman.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. I am unable to form an opinion upon this point from my slight acquaintance with him, but the facilities for his doing so are greater than those offered to his British brother.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. I am unable to give an opinion as to the American workman, but I assert that no employer who behaves in a fair way to his employés, in either country, need ask in vain when special stress is placed upon him to get his work out.
18. Are the American employers more accessible to their men than English employers?	18. Most decidedly they are.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Undoubtedly there are.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In those I saw, yes.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. *(c)* Yes. Greater space is also given to work in. *(b)* I should say the organisation in an American factory is better than at home. As regards University training, I am unable to say. *(c)* I should say Not.

Questions.	*Answers.*
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. I am unable to give an opinion as I had no opportunity during my stay to form one on this point.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Yes; viz., more air space in workshops and factories; more provisions for workpeople in the matter of locker, baths, storage of cycles; the recognition of workmen's officials in all points of grievance; the adoption of the plan of allowing workmen to offer suggestions, etc.
(C) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) It naturally follows that, with wages so much higher in America than in England, those who desire to live well can do so much easier than in England. (*b*) Favourably.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) I don't think so if the quality of the material is considered. (*b*) The prices vary in each State, but I should judge that in the majority of large cities the cost is about double.
26 (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) I don't think so. (*b*) On an average nearly double the rent is paid in America as compared with England. (*c*) I have no statistics upon this point, so I am unable to say.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. More than double.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account?*	28. At least 25 per cent better.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. I cannot say.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. Yes. Gambling is general.
32. Is the American working man more sober?	32. I don't think so.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I fail to see how he does more work in earlier manhood seeing the majority don't start until 18, but it is a fact that compared with the British worker he does deteriorate earlier and his working days are shorter; in fact, his life is much shorter than that of the average British worker. New York plasterers compute a plasterer's actual average life at the trade as between 40 and 50 years of age.
34. Is it true that the American workman is thrown out of work at an early age?	34. Yes. This naturally follows owing to the circumstances relating to the previous question.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) Yes. (*b*) To overstrain. I cannot say that the climate in unhealthy; in fact, judging by myself, I should say not. The reasons further than that given at first must be sought elsewhere. To ask one who never

Questions.	*Answers.*
	had an opportunity of working amongst the men and living with them, to answer such a question seems to me somewhat out of place.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. I am unable to say.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. I am unable to say.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. No.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. I approve of any method of preventing strikes or lockouts that does not interfere with the collective bargaining of the worker.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. I consider there are ample associations of its kind in England at the present time which might do the work the Civic Federation sets itself out to do.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. I can only answer for myself, and my reply to 39 and 40 covers that.

M. DELLER.

Mosely Industrial Commission.

Report by Mr. H. CRAWFORD, of the General Union of Operative Carpenters and Joiners.

[*Mr. Crawford's report takes the form of a diary, in which he gives in considerable detail an account of all he saw and did during the time he spent in the United States. The following are the portions of the report which refer specially to the industry which Mr. Crawford represented.*]

* * * * *

At Cleveland we were taken round the various wood factories by Bro. Sykes, of the Amalgamated Carpenters and Joiners' Society, and a gentleman deputed by the Chamber of Commerce. Our first call was at Messrs. Gray and Carlton's, wood workers and manufacturers of all kinds of joinery for the trade. I found their machines doing what we entirely do by hand labour at home. All the men had to do was to put together, the cleaning off being done by a machine called a glass papering machine. It had rollers about four feet wide. Round each roller was a layer of carpet, and then the glass paper. As the rollers moved in opposite directions, both sides of a door or sash would be cleaned off at once. The pulleys of sash frames are rounded at the ends, instead of square, as at home. The machine completes the housing, nothing being left for the mechanic but to put it in its place. Some of them are not even screwed, but by giving a blow with a hammer a pin is driven into the pulley style at each end of the pulley. Cleaning out circular or segment heads is done by small compass sandpaper rollers, and not by compass plane as at home. Bevelling or chamfering is done on a glass paper wheel, which, if the work is rounded on ends, finishes complete. Styles of doors are glued up in thicknesses of about one inch; all sorts of lengths are used, and all the short lumber is worked in. The stuff is then run through the planer and then veneered. Inch pieces, the thickness and height of the door, are placed on the outside, so when the veneer is on all the short lumber is hidden from sight. They maintain that a door made in this way will keep true, and not twist or wind. They have every convenience for glueing up, including presses with strong iron screws in abundance; at home we should have to use hand screws, or make cleats. There is no piecework. They have a heating room in which to heat the zinc cauls when they are veneering; this room is kept at a high temperature by steam pipes or hot air. The glue is put on by a roller running round in a hot tank of glue. Two men are glueing, and two men putting the work in the presses with hot zinc cauls between each piece that is veneered. The employés work ten hours for the first five days of the week, and nine on Saturdays. In summer, for six months, they have a half-holiday on Saturday. Wages are 2¼ to 2¾ dollars per day of 10 hours.

We next visited George Faulbaber's factory, principally for high-class church work. Some of it was richly carved. The first machine that I looked at was called a "jointer"; it completed two joints at once ready for glueing. The boards were an inch thick. The joints I examined were splendid. At home we cannot glue up from the machine, but have always to shute with a trying plane. Next we saw the carving machines, doing four caps or trusses at once, attended by a lad about 18 years of age; the work never requires to be touched by a hand carver, except in very special cases. I next noticed a franking machine, to mortise sash bars. The bar was stood on edge and the chisels cut from both sides, the mortise and core being cut clean out at

the same time. The machines could cut the full size as well as frank. In this country we have to do the bars by hand in most cases, as the factories have not got the machine. I next saw a housing machine that could do any width, with a separate spindle to do square housing. The work was done clean; it would take a long time to make such a clean job of it by hand. Sashes were not glued or wedged, but were screwed up on a special iron bed; screws were attached for wedging up only, two iron pins being simply driven from the outside of the sash, but not through. The workmen in this factory work 10 hours per day all the year round. There is no piecework. The wages are 2¼ to 2¾ dollars.

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At Chicago, the first call was made at Theodore King's cabinet factory, where twelve hundred men are employed. The cabinet-makers receive 25 cents per hour, but there is no piecework. French-polishers receive on an average for piecework $2·40 per day of nine hours. The first thing was a long knife jointing machine for jointing veneers. The knife is about four or five feet long, with upright frame, and a screw press to fix about two dozen thicknesses of veneer together. The knife comes down with great power, and they are all jointed ready for the man to tape. There was also a shorter knived machine on the same principle to joint veneers endways; it turned out a first-class job, for I tested several of them. I saw them glued on in exactly the same way as described at Cleveland. We then saw the trees being cut in certain lengths outside, and followed into the mill to see them cut into veneers; they were put into a sort of lathe, and chucked as if for turning. The bark was taken off first, then the knife was adjusted, and very soon the tree was cut into veneer three-sixteenths thick. A whole row of these machines were at work; I think they are much the same as at home.

Next day I was taken first to Mr. Edmond's factory. He is a Welshman, and worked many years in London previous to his arrival in America. He said that he had no capital on arrival, so he worked journeyman for a considerable time, to gain both experience of their methods and money to start with. He and a Scotchman started in a very small way at first, but they persevered, and succeeded above their expectations, and now he does nothing but the very best work. I thought now was my opportunity to ask from a man who had worked on both sides of the Atlantic, whether the men worked harder in America than in the old country? His answer was emphatic. "The machinery does the work here; I never worked so hard in all my life as I did in London. Practically all was hand labour, and what was done by machinery was most imperfectly done. That was not always the fault of the machinist, but was due to old and not up-to-date machinery. Whenever we hear of a new machine coming out, and we find it is better than what we have got, we chuck the old out, and put up the new one at once. Here is a mortise machine, the best I could get at the time. Now there is a new one, invented and patented by a Mr. Black, of Mendota, Ill.; I ordered one at once, but I cannot get it, such is the rush of orders. That is how we get along so fast with the work here; in the old country, they just drag along with the old machinery, and only when it is worn out, and not till then, will they think of replacing it." The men in this shop were working as comfortably as ever I saw men in all my experience, for all the hard work was done for them. Nearly all the hands were from the old country, the foreman from Edinburgh, N.B., and I felt quite at home. The wages paid are 45 cents per hour, working eight hours per day.

The Brunswick, Blake, Collender Co. was the next call. They have branches in New York, St. Louis, and Cincinnati, and manufacture billiard and pool tables, bar fixtures, and bowling alleys. This is a very large factory of seven storeys, with a floor space of 10,000 square feet. Fourteen hundred hands are employed at a weekly wage of 76,000 dollars. No piecework. Carpenters (or joiners) receive 45 cents per hour, and cabinet-makers 25 cents per

hour, nine hours per day, but carpenters only work eight hours. The firm sends away 400 billiard tables per month, 125 complete sets of bowling alleys in the same period, and a great quantity of bar and restaurant fittings of the highest class of manufacture in mahogany. The manager received us most courteously, taking us round every floor, and showing us the precision with which the work was done by the machinery. The billiard table legs are all veneered, and the veneer is put on from the band saw; the veneer is steamed and stamped by a machine, the exact reverse of the leg. I put the stamped veneer on the leg, and it fitted first class all ready for glueing and putting in the press, with a reversed caul upon it. There was nothing fresh in machinery beyond what I have described previously, but I could not but admire the work that was in the saloon fittings they had in hand. They used a great deal of composition carved moulding in their saloon fittings.

Next day we went to inspect some large buildings in course of construction. The mode of building is quite different from ours. They put up an iron frame from the bottom to the top of the building, uprights and girders being all stoutly bolted together. The stone, or marble, or brick, is anchored, as they call it—we should say tied—to the iron frame work, thus enabling them to run the building up with great rapidity, to enormous heights in a few months. There is no fear of buckling, unless the ironwork collapses. The filling in between the floor girders is done much the same as at home, in order to make the building comparatively fireproof. The bricks here are smaller than those used at home, eight inches by four by two and a quarter inches, therefore they are much lighter to handle. Some say they lay two thousand per day. I asked the inspector or clerk of works, at a school building, and found that on this job, or where they are properly looked after, 1,400 is nearer the mark. The flooring is tongued on the solid and grooved, and driven from and nailed through the tongue, no nail holes showing on the surface.

We next proceeded to Grand Rapids, the largest manufacturing centre of the cabinet industry in the world, where there are 31 cabinet factories—13 of them employing from five to six hundred men each. There is also a house, sash and door factory of great dimensions; you send the plans, and your house is all put together in sections, and sent to any part of the country. Anything in the wood line is manufactured at the mills, and there are large veneer-cutting mills. The town itself is very much like a thriving town at home, because it is not a large place, though known throughout the world for its gigantic cabinet works. We had no delegates here, trades-unionism being unknown in this region. Why? Because the masters here took the bull by the horns, and were the first in the field by their plan to supplant unionism, by lending a sum of money to their employés to enable them to purchase their homes. The employés contract on their part to allow a certain sum to be deducted from their wages. The masters says it is a paradise for the men, for they would never have had the houses but for them. Compare the wages paid with those paid where unionism is strong. We found them very cautious at first in admitting us, but we presented our cards, and the most of them had heard and read in the newspapers that an Industrial Commission was coming from the old country, and after they had thoroughly satisfied themselves that we were really members of that party, they were most courteous and obliging in every firm we visited.

The factory of the Grand Rapids Chair Co. covers 15 acres of ground, and is four stories in height. It looked like a town to visit. It has a frontage to the Grand Rapids river, also there is a railway siding into the warehouse, where the furniture after it is packed awaits transit. The firm employ about 500 men, cabinet-makers averaging $12 to $13½ per week of 60 hours. There are two partners, one takes charge of the office and the other of the factory. After a friendly chat in the office, the factory partner took us round floor by floor through the workshops

crowded with machinery. No speciality in chairs is made here now, but suites complete of every description. The different heights of the floors, with slopes from one to the other, tell of the growth of the factory from a very small beginning. There is nothing to report new in machinery, but every machine was kept running with its own special work, the hands only putting together.

We were then taken to the polishers' room. They fill in quite differently from our method. They grind Silesian rock as fine as flour, mix it with linseed oil and japan to about the thickness of white lead, then make down with oil to the thickness of paint. This they put on with a brush on large surfaces about four inches long, and then wipe off and put into a drying-room for 24 days for varnished work, 36 days good polished work. We were surprised at it being allowed so long to dry. "Ah," they said, "we want our work to stand."

At Widdicomb's cabinet factory the same difficulties of entrance had to be overcome, because we were thought to be spies from the Dominion. I suppose there are some very enterprising manufacturers there, or the owner would not have been so suspicious. A quiet talk cleared up everything, and we found him one of the most pleasant employers in the Grand Rapids. He stated that no strike had ever happened in his factory. The factory covers 11 acres of ground, with 242,000 square feet of floor space; it is four floors high. The valuation of the premises, plant and stock, is $600,000. Two thousand feet of lumber are used for packing cases per day. It has a frontage on the Grand Rapids river, and a railway siding into the packing warehouse. Four hundred and eighty hands are employed at the average wage of the previous factory. There is a deputy foreman to about every six men, paid $3\frac{1}{2}$. We saw a new machine, called a "scraper," which cost $1,800; it was an entire failure, till the patentee invented a sharpener for it, as no one could be found to keep the "scraper" in working order. It is about three feet long, and as mechanics all know, it is quite enough to keep one in order six inches long. The machine now, with its "partner," the sharpener, does its work splendidly; after one shaving right across anything up to three feet, the most cross-grained mahogany is ready for the glass paper machines. One of these has two rubbers, and a long lever handle enables the man in charge to lean heavy or light at will. It has a travelling frame, and works over the surface exactly the same as if you were papering by hand. That machine is only used when highly polished work is done; in all other cases they only use the glass paper roller machine. The next was an automatic cross cutting machine, that cuts both ends at once to a given length; you can fix, for instance, any number of drawer sides, to the depth of saw. There are two screw cramps that fasten them right against the fence; a touch on the lever with the foot, and it is cut to length like magic. Next there is a dovetailing machine, universally used. Nothing is done by hand, except in the shop where new designs or patterns are made. They have a show of furniture every six months, when these new designs are submitted to their customers; if any of them take, then an exact pattern of every piece is made, and all are numbered and sent out into the factory. The machines do all the rest, except glueing together. There were four carving machines at work, costing $750 each, and a number of hand carvers. The wages were from 31 to 35 cents per hour. All the suites were of the highest class. The polishing looked like glass, and they take care to keep it so by always keeping the furniture at an equal temperature; they fire up in winter, to keep the room to summer temperature or at least to 70 degrees. The owner offered to drive us round to see the nice houses and gardens his employés had, but we declined his kind offer, for we had only done two factories so far, and the next day was Sunday.

On Monday morning, on calling at the Phœnix Cabinet Factory, Mr. Kendall, the managing partner, received us rather stiffly at first. He employs 590 hands. The factory is the largest

in the Rapids, four storeys in height, and established for 30 years, being the oldest factory in the place. He ran us round, but we saw nothing fresh to record in the way of machinery. But in our chat he said that he was well acquainted with our London shops, as he very often had a run over. "Take," he said, "the 35-cent tariff off—that is duty charged on English furniture—and I could make the goods far cheaper in the old country. It made my heart bleed to see the good mechanics working, with nothing but their trousers on, at not half the wages we pay here. All my best mahogany I get from Liverpool, and my best veneer from London. We all do; we cannot get it from anywhere else. The best mahogany comes from Africa. Your style of furniture would not sell here, nor ours in England. We export a little to Austria, but most is required for our home trade." So, if he cut us short in the factory, he gave us some very cheerful information—that they cannot do without us yet.

In the afternoon we called at Fuller and Rice's sash and door factory. This stands on fifty acres of ground. They have a large quantity of all kinds of seasoned woods. They were making a large quantity of five-panelled whitewood doors, with a small moulding stuck on solid. I asked how many of these doors they turned out in a day of ten hours, and was told that four men with the machines turned out 150 per day. The man tenoning had a machine that cuts both tenons at once; the cutters of one end can be shifted backwards and forwards so as to suit any length, but it was admitted that, unless they had quantities of a given length, it would be better to tenon only one end at a time. But consider the quantities in hand, all one size. One man was mortising; one knocking together; the rails were scribbed by machine; one man was wedging up by an automatic machine; the planed iron bed was slotted; there were any number of cramping shoes both ways. The man put his foot on the treadle and the door was cramped both ways simultaneously. Then he put it through the glass paper roller machine, and both sides were cleaned off. The styles of doors at this factory were mortised through and wedged, but in most places were only stubbed in about three inches. The wages paid joiners or woodworkers were 2½ dollars per day of ten hours.

The chain mortise machine which we saw in use was a great novelty to us, and struck me as invaluable in cases where the mortise does not go through. It works on two small pulleys, like a band saw, digging into the wood, and bringing up the core with an action like a grain elevator, and taking it clean out—in fact, I never saw a mortise cut so clean.

At New York I was taken to see a door and sash factory at the old city of Mount Vernon. I saw nothing but what I have described already. They have, however, bought up the patent and machinery to joint up large wood columns in a very ingenious way and turn them, and flute the columns without the aid of manual labour. Large columns about 20ft. long and 2ft. 6in. at base were being done. We also saw Mr. Mollogan's factory, who does some of the best joinery in New York. He took us all over his factory, and it appeared very small after visiting the factories of Cleveland, Chicago, and the Grand Rapids. His work was of a very superior kind, the best material he could buy being used. The work was for a rich Insurance Trust close to Wall Street. Mr. Mollogan gave me his card to go and inspect the work after it was fixed. We found an immense addition to the premises was being built. The foreman took us from the bottom of the job. I saw some as fine grained mahogany as ever I have seen for the quantity that was in that job; at the top of the building I found some very ornamental plaster work, finished with Keen's cement. No money was spared and everything was of the best that could be got. Mr. Mollogan employs about 250 men. We were taken to several places of a minor character, but they had nothing up to what we had seen in machinery.

The following is a comparison of a joiner or carpenter in New York and a member of the same trade in London. In both places higher wages are paid than in any other part of either country.

IN LONDON—Average weekly wage (48 hours week) for the 12 months ...	£2	2	6
Unmarried man, board and lodgings	0	15	0
Balance	£1	7	6
IN NEW YORK—Joiner Carpenters, 44 hours all the year round	£5	3	2
Board, superior	1	9	2
Balance	£3	14	0

Hence the American can save nearly double, though he works four hours less per week.

Answers to Questions, by Mr. H. CRAWFORD.

Questions.

(A) EARLY TRAINING OF THE WORKER.

1. Is the American lad better equipped by early training and education for his work than the English lad?
2. If yes, what changes would you suggest in the English system of education for the working classes?
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?

5. Does the American workman do more or less in an hour, on average, than the English workman?

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?
7. Is this system found of benefit (*a*) to the men, (*b*) to the employer? Does it give an unfair advantage to either side?

Answers.

1, 2, 3. With the present opportunities in Great Britain of attending evening and technical classes, lads have equal opportunities in both countries, if they will only embrace them. In America the lad of working parents has the opportunity of receiving a college education free, if his parents can afford to keep him; that we cannot have in this country, except by competition, which excludes all but those of high ability. The relations between employers and employed are much better in America, for the former mix more with their men, are much more social, and are on more equal terms with them; they are thus much more readily approached by the men, and a feeling is created that the concern is worked for the mutual advantage of both.

4. The hours vary. In the large towns or cities, where the men are better organised, they work 44 hours per week, but in the unorganised towns they work 60 hours per week. Carpenters' wages in the former are from four to four and a half dollars per day of eight hours; in the latter, from two and a quarter to two and three-quarter dollars per day of ten hours.

5. In every shop I went into the great majority of the men had worked in the old country, and their opinion was that they did not work so hard in America as in England. The secret is good machinery properly handled, not by novices, but by good machinists.

6. I never found piecework in my trade either in the shop or job.

7. (*a*) In my opinion, it is highly injurious to the health of the men, as they work beyond their normal strength, and considerably shorten their lives, and leave their wives and children to the care of the parish authorities or a burden on their friends. (*b*) I could give several instances of employers cursing piece-

Questions.

Answers.

work, because they had got so much work stacked up they could not use, and the clerk of works would not pass it—for instance, doors winding, and styles not straight if hung; the door would never close properly, so it would be condemned and ordered to be taken down.

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

8. As I found no piecework being done in my trade, I cannot say.

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

9. I found none being paid.

10. Where weekly wages are paid—
(*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
(*b*) On this system do personal energy and initiative meet with a due reward?

10. (*a*) One could only answer for America by working in the shops. (*b*) I found they gave personal energy in America a large reward, as much as a dollar per day extra.

11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

11. Yes, certainly; I found they put a high-paid man, or foreman, over about six men receiving low wages to make up for the higher paid one, but that occurs only in unorganised districts. Before raising wages I am much afraid employers there will wait till they are asked, as in the old country.

12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?

12. Upon inquiry of the men, I found they always welcomed machinery, as it lessened the strain on themselves, and there was always plenty of work for those who were willing.

13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?

13. They are welcomed by employers, who told me they were always very pleased to have any suggestions from the men. But they did not tell me they gave any special remuneration though, as in this country, their services might be longer retained.

14. (*a*) Do the workmen attend on a larger number of machines than in England?
(*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?

14. (*a*) No; every man has his own machine, and simply does one class of work.

15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?

15. It would look like it. I saw a man smoking right in the open; that would not be tolerated here for a moment. In a shop in New York I saw a workman shoving his plane along at such a slow pace that I would give him one half-hour in any shop in London. In both countries they want looking after.

16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?

16. The English workmen far surpass him in this respect, because the great majority of them never serve their apprenticeship, and only get one particular part of the work to perform. If given the drawing and lumber, they would be entirely lost and could not do the job; at their own particular part they become experts.

Questions.	*Answers.*
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. I was not long enough in observation of the men to answer this question; you must have worked with them.
18. Are the American employers more accessible to their men than English employers?	18. Yes, as they personally go through the factories and see how the work is progressing.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes. But he must go to the newly-settled towns, and not to such places as New York and the older established towns, because there are plenty of old-established builders in all these places, as in England.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. The workshops generally are kept much cleaner, and the appliances for warming the shops in the winter make it much better for the workman and the work than in England.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Their appliances are much better than ours. (*b*) I could not say unless I really worked in the shops, but all that I consider the best methods were adopted of pushing out the work quickly. I know at home that often it is not the fault of the management, but the niggardliness of the employers, who will not supply the best machinery to do the work. Employers in America vie with each other to get the latest up-to-date machines. (*c*) No; we have as good work, and there is more labour in our first-class work, such as in the Houses of Parliament and gentlemen's mansions.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) They work in several of their principal cities and towns about the same hours as ourselves, and in a few instances shorter hours, 44 hours to our 48 per week, and double the wages for their week. The explanation is the excellence of their machinery and the better manner in which it is worked. (*b*) They have got the power to work the machines at more than double the speed we can.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Get good workshops, with up-to-date machines, keep them clean, and provide means to keep the men warm in winter.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) I should say yes, for they are better paid. (*b*) About the same.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) About the same. (*b*) American-made cloth can be had about the same price as ours, but our best makes of cloth are double the price we pay at home.

Questions.	*Answers.*
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) Yes, they can afford to pay more rent. (*b*) Much higher. (*c*) Yes. In a good many instances the employers advance the money, and so much is deducted regularly from their wages. I found it so especially at the large cabinet factories at the Grand Rapids. One employer there of 500 men said that the whole of his men lived in their own houses, and he never had a strike in his factory.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. Very much higher.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Everything averages about equal, except rent and clothes.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes, if he chooses. Certainly.
30. If yes, does he *in fact* save more, or not?	30. Yes, for I found some of them who had their 1,800 dollars in the bank, and who had been home for a holiday for a month or two several times. Others had sent their wives and families home for a holiday. Some who went there as journeymen now have thriving builders' businesses, which they never could have had in this country. I can speak authentically, for they are my own friends.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No. Upon inquiry, our friends there do very little in that way, compared with those at home.
32. Is the American working man more sober?	32. I believe he drinks as much; and it costs much more, for you can get nothing under five cents (2½d.), but it is light beer, and you would have to drink a barrel of it to get intoxicated. It costs 15 cents for a drink of whisky, of which I saw very little drunk. I saw but two intoxicated persons during the month that I was there.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I do not think he does more work, but with the hot summers, followed by cold winters, the workshops must be kept as hot in winter as summer, to enable them to do the glueing and keep the work from swelling, as it surely would do in a cold shop. Coming out into the cold, below zero as it sometimes is, must give them colds on the chest; these repeated year after year become acute, and shorten their lives.
34. Is it true that the American workman is thrown out of work at an early age?	34. Upon inquiry I found it to be the case that they had no use for old men, unless they got into a jobbing shop, where the employer could charge by the day.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) According to what I heard, it is so. (*b*) I attribute it to the climate and living more fast than we generally do here, as I found them spending their money very freely.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. I found by inquiry that there is very little employment to be found for men over middle age. I found in the workhouses men

Questions.

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

40. Could an organisation on the same or somewhat modified lines be introduced into England?

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

Answers.

who were able-bodied, but unable to find employment, who were well cared for, clean, and comfortable.

37. Yes. The working classes have more money to spend than we have in this country, a mechanic averaging five pounds in New York and only two pounds per week in London. This enables him to be generous, and the great extent and wealth of the country enables them to deal with the less fortunate among them in an open-handed and generous manner.

38. Yes. I found there was plenty of employment, and generally much better paid. Give us the same conditions as there, for I found all classes aiming at lifting the labouring classes, and making them feel that they were citizens, with duties to perform to the State.

39, 40, 41. Any independent body of gentlemen who would form themselves into an association, so as to bring the two contending parties together to discuss their grievances in an amicable way, as the Civic Federation of America did in the case of the coal strike, would have my approval in principle. In discussing the merits of the Civic Federation, the general feeling was that we must wait and see more of how it worked, and the results springing therefrom, before we recommended a like body in this country.

H. CRAWFORD.

Mosely Industrial Commission.

Report by Mr. HARRY HAM, of the National Amalgamated Furnishing Trades' Association.

Leaving Liverpool on Wednesday, October 29th, 1902, in company with the delegate of the General Union of Carpenters and Joiners, after a fair and pleasant voyage of ten days we arrived at Philadelphia on November 8th, and within an hour of landing had succeeded in looking up an old shopmate with whom I had worked in London over twenty years ago, with the object of getting his assistance in the work before me, the result of which will be given later on. I left for New York on the same evening, arriving at our headquarters, Ashland House, about 10 o'clock. Next day (Sunday), in company with the other delegates who had arrived, we attended the weekly meeting of the Organised Trades of New York, who accorded us an enthusiastic reception. From the chairman, who is a woodcarver, I ascertained that the present wages of the trade are 44 cents per hour (1s. 10d.), an advance of 25 cents per day having been obtained during the year. The hours worked are 44 per week. Cabinetmakers' hours are the same, and their wages $3·78 (15s. 9d.) for an eight hours day. Only a small percentage of furniture is now manufactured in New York, the greater portion being obtained from the West.

My investigations respecting the upholstery section of our trade in New York shows that it is now unorganised. Originally they were members of an association known as the "United Upholsterers of New York," and were about 600 strong, having obtained their charter from the International Upholsterers' Union, which was affiliated with the American Federation of Labour, which embraces Canada. They have, however, seceded from the parent society by failing to pay their dues, but are again to rejoin, a resolution to that effect having been passed at the late Labour Convention at New Orleans. The hours worked by the upholsterers are eight per day, and the wages paid by first-class firms are $3½ per day, an advance of half a dollar having been obtained during the year. Carpet cutters and drapery men obtain the highest wages, viz., $4 per day. Carpet layers get from $3 to $3½ per day. In the busy season (which extends from the middle of September to the beginning of December) the foregoing terms can be easily obtained, but, as these workers are not organised, they cannot be retained for the remainder of the year. The two leading firms in the upholstery line are W. and T. Sloan, 19th Street and Broadway; and Arnold and Constable, Broadway. The hour of starting work in New York is 8 o'clock, of lunch from 12 to 1, and of leaving off 5. Double wages are paid for overtime; so if a workman is required to work until 9 o'clock, these four hours count as another day.

While in New York I visited—in company with the joiners' delegate—one or two joinery firms, but as it is understood that each delegate is to restrict himself to reporting on his own particular trade, such shops will not be referred to in my report. Cabinet showrooms seemed to me to be very restricted in New York. I spent an hour or two in inspecting the furniture department of Macy's stores, but found (with one exception) nothing half so perfect in design or workmanship as is to be found in a second-class shop in Tottenham Court Road, London. I make this statement despite the recent utterances of the Viceroy of India respecting goods sold

in this well-known furniture mart. The exception referred to was an inlaid satinwood Sheraton suite. The head of the department was not present, but from the construction, as well as the design, I put it down as an imported article from England.

On November 13th we left New York on our tour of investigation, going by way of Buffalo and Niagara, where we were to pick up the remainder of the delegates, who had come by way of Canada. The grandeur of Niagara has been described by our most able writers, but no pen can exaggerate its beauties; and to those who have the means, the sight well repays the journey, for without a doubt it is nature's masterpiece. Leaving Niagara on the night of November 14th we arrived at Cleveland early the next morning (Saturday), where we were to stay until Monday night. The trade-unionists here gave us a most earnest reception, and did all in their power to make our visit as pleasant as possible, with a due regard for the chief object of our visit. On Sunday morning we were taken by the labour leaders for a long car ride into the suburbs, and in the afternoon for a coach ride to Garfield's tomb. From this elevation a splendid view is obtained of the surrounding country, and, had the season been spring instead of winter, the scene would have been grand.

On Monday morning, accompanied by the delegate of the General Union of Carpenters and Joiners, with a business agent or organiser, and a clerk from the Board of Trade, we first visited Mills, Gray, and Crabtree's sash and door factory. For the reason already given, I leave it for the aforesaid delegate to give particulars of information gained there. The next firm visited was Faulhaber's. This is a mixed shop, employing both joiners and cabinetmakers, each getting 15 dollars per week (£3. 2s. 6d.). Sixty hours constitute a week here, and only half-an-hour is allowed for dinner. Machine carvers get 29 cents per hour, and the machine cuts three panels from the same pattern. All polishing, unless it is something very special, is done with the brush. Wages vary from $1 75c. to $2 per day. Wood turners in Cleveland get 2¼ dollars a day and work 60 hours per week. A visit to Cunze's factory concluded our investigation so far as Cleveland was concerned, as we had to leave for Chicago that same night. The work done by this firm is almost exclusively restricted to the making of table stands and covers for sewing machines. Here there is no recognised day wage; they pay the workpeople what they (the firm) consider they are worth—lump work predominating. Very few could speak English, so we had great difficulty in getting accurate information. As the employer requires men he imports them from Austria, Hungary, Bohemia, and other Southern European States. Men, youths, and boys, to the number of 1,200, had to move themselves to get a living. As far as I could ascertain there was not a trade-unionist in the factory, and no one will deny that where trade union principles are ignored bad conditions and a low rate of wages always prevail, and the reverse obtains where organisation is perfect. Polishers here work by the piece, but I saw no one using the rubber—nothing but the brush. The price paid for filling in and varnishing a sewing machine top is two cents (one penny) each, and we were told by one of the firm that 180 had been done by one man in a day, but I should recommend this statement to be taken with a pinch of salt. The top money for the best class of cabinetmakers in Cleveland is 18 dollars for a week of 54 hours. This applies likewise to first-class machinists.

We arrived at Chicago on November 18th. The first factory visited was the Brunswick, Blake, Collender Company. This firm confine themselves chiefly to bowling alley fitments, bar and restaurant fittings, and the manufacture of billiard tables. There we were received with the greatest courtesy by the manager; all questions were answered and information given without the least reserve. The workshops consist of seven floors, the measurement of which is 60,000

superficial feet. One thousand two hundred workers are employed, and the weekly wage bill is $16,000. This firm turns out, on an average, 400 billiard tables in a month, and a complete fitting for 15 restaurants. A good class of work is done, but it is the immense amount of machinery which allows such a quantity of work to be turned out. One example will illustrate this. We were shown the frame of a billiard table, the carving on which originally cost $30; it was now done for $3. The men in this shop, although they kept moving, did not in any way appear to distress themselves.

The next morning, accompanied by a business agent of the Woodworkers' Union, I visited the factory of E. J. Davis, 23rd Street. There they had in hand a contract for the whole of the interior fittings for the First National Bank. This is a two years' job, and there will be no waiting for the interior fitting, as the men were engaged in cleaning up 3,000 two-inch doors and the foundation of the building is only just laid. I saw here more men working at the bench than I had as yet seen in any shop in America, showing there was more work done by hand than I had seen in any shop in the States. This is a comparatively small shop, only employing about 60 men, all trade-unionists and mostly members of the International Woodworkers' Union. The wages range from $2¼ to $3¼ for a nine hours day, for both cabinetmakers and machinists. Polishers here command the highest remuneration I had heard of in the States, viz., 40 cents per hour, the reason being that they were strict society men, members of the Brotherhood of Painters and Decorators.

We next visited the workshops and warehouses of C. Petterson, 49 Fourth Wentworth Avenue, and found the goods manufactured were chiefly sideboards and overmantels; the wages averaged the same as in the previous shop, and also the same in respect to the hours worked. There are 120 men employed, and the fact of their using up a car load of wood every day shows that machinery does by far the greater portion of the work.

We finished the day by looking over Berg's deal working shop, and found the goods made there were general domestic necessaries, such as seats, ironing boards, towel horses, step ladders, etc. Only one society man was engaged by this firm, to whom they paid $3 per day; the wages of the others ranged from $1½ to $2 per day. Sixty hours in this shop constitute a week. The goods made are of a very shoddy nature, but quite as good as you could expect for the price. One article will suffice. The retail price of a four-foot step ladder, with two iron crank stays at the bottom and a shut-up pail rest at the back, is 1s. 8d. We understood before inspecting the works that we had made the object of our visit quite clear to the employer, but on leaving he satisfied us in no unmistakable manner that he had been expecting an extensive order.

The recognised hours for general cabinetmakers in Chicago are nine per day (non-unionists working ten), and the wages vary from 25 to 32 cents per hour; the same refers to machinists. The trade rules are enforced by a central body composed of delegates elected by ten different unions. The chief rule of the woodworkers is, that it shall be the duty of the shop steward to see that none but union men of good standing, and in possession of the quarterly working card of the Council, shall be employed in the factory over which they have jurisdiction, unless otherwise ordered by the Council; further, that no member shall be allowed to work in a non-union shop without a special permit—if this is disregarded he subjects himself to a fine. Stewards and members in their respective shops must keep strict watch on the labelling of all work, and see that no goods are labelled except those made under union conditions. British employers are constantly asserting that "trade unions act in restraint of trade." If this is so, how is it that, although more stringent conditions are imposed by American trade-unionism

than those of our own organisations in Britain, America is taking our place in the world's markets as a commercial nation? The contribution to the American Woodworkers' Union is 6d. per week, and the initiation fee 10 dollars (£2. 1s. 8d.), which personally I consider somewhat excessive. It is quite right to inflict such a fine upon a workman who has spent the best years of his life outside an organisation, but to serve a youth who has just qualified for membership, and anxious to join a union without pressure, in the same manner is, in my opinion, scarcely the thing. However, I am satisfied the union mentioned have a most able class of officials in Chicago, and they should know best the needs of their union and the conditions necessary to safeguard their interests in the trade.

As the Commission had only arranged for a stay of two days in Chicago, I intimated to those in charge that as the Grand Rapids was a great centre of the cabinetmaking industry, it would be better for me to remain behind and forego the pleasure of meeting President Roosevelt at Washington, although I should much have liked to become acquainted with both. Leaving Chicago on November 20th at 11 o'clock at night, we arrived at Grand Rapids at six the next morning, and before nine found ourselves in the private office of the proprietor of the Chair Making Co. This is a general cabinetmaking factory, and, after a chat on trade matters, we were introduced to the manager (Mr. G. Mowett), who at once took us in charge and conducted us over the immense factory, commencing with the timber yard and finishing with the packing rooms. Here we were given every opportunity of minutely inspecting the whole of the machinery plant, and when any particular machine was not at work, it was set going and the mechanism explained. This particularly refers to a scraping machine, which is mostly used for veneered work. This machine cost $1,800, and it had saved the firm over that amount under two years. My attention was likewise called to an automatic cutting machine, which cuts both ends at once by simply pressing a lever with your foot. A number of four-cutter machines for carving were at work, each having only one attendant, showing that the number of hand carvers employed would be limited. Such workmen are paid from 30c. to 35c. per hour. The cost of the machine referred to is $750. In viewing the manufactured goods, we called the attention of the manager to the splendid figure in the veneered work. "Yes," was his reply, "we are not particular what we pay for high-class veneers, and we buy all our best in the English market." Four hundred and fifty workmen are employed here, and the wages of the cabinetmakers and machinists vary from $12 to $13½ per week (this refers also to other shops in the town). This factory is most conveniently situated, having a river at the back and a railway in front, so that the timber is taken in at one side and goes out at the other as manufactured goods. Together with the timber yard, it stands on 15 acres of ground. It is four storeys high, each floor measuring 700 feet by 60 feet, and has been established 35 years.

The afternoon was devoted to inspecting the factory of Messrs. Widdicomb. At first it seemed doubtful whether the proprietor would concede our request, for he had evidently not understood, from our note of introduction, who we were and the object of our visit. He took us for visitors from the Dominion, and as he had had such visitors before who had taken undue advantage of their visits, he declined to allow us to be shown over the works. When he was given to understand, however, that we were from the old country and found the object of our mission, all objections at once disappeared, and he himself personally took us in charge. Before entering the works, he informed me that his father and mother were both natives of England, and were born in the city of Exeter, and on being informed my home was only a few miles from there, his reply was, "Is that so! give us your hand," and there was no doubting the genuineness of the grip. This factory stands on 11 acres of ground and employs 481 workers, and consumes over 2,000 feet of timber per day for packing purposes. The proprietor prided himself on the superior

manner in which his goods were polished. They are first filled in with a mixture of rock stone ground as fine as powder, linseed oil, and japan, after being varnished. Ordinary work is allowed to stand for 24 days, and high-class goods 36. It is then rubbed down and finished off by rubber, so it is not surprising at the work standing well. This is somewhat different from England, where a wardrobe is often rushed into the polishing shop on a Friday and sent home the following day. Speaking of polishing, in most factories those who did the filling in and the varnishing were paid a slightly higher rate than those who used the rubber (or finishers.) Here, as before, every facility was given to minutely inspect the whole of the plant, and the head of the firm was ever ready to give us the fullest information. This firm has been established close on 30 years, and have as yet never had a dispute with their workmen. One thing I noticed as peculiar in the shop—while other branches were in full swing on Saturday afternoon, the hand carvers had cleaned their benches and arranged their tools, the same being covered with their aprons. Asking the reason for this, I was informed that they left off work on Saturdays at 12 o'clock, instead of making 60 hours per week as is the general rule in our trade at Grand Rapids. Before leaving we had a pleasant chat with the proprietor in the office on trade matters, and on leaving were presented with a copy of his latest illustrated catalogue. This brought a most pleasant afternoon to a close, the proprietor asserting that our visit was most gratifying to him and had given him as much pleasure as it had us.

Our next visit was to the Phœnix Works, which are the largest in the town, employing 590 workmen. Before being shown round by the manager himself (Mr. Kendall) we had a couple of hours' conversation in his office as to the different methods in which business was carried on in America, as compared with England, and the difference in method of manufacturing in the two countries. We ascertained there were in Grand Rapids 13 factories of about the same size as those we had already visited, and 18 smaller ones, which are still being added to, showing this town to be a perfect hotbed for the manufacture of furniture. During the interview the manager informed us that he had been in London six or seven years ago, and whilst paying a visit to the Curtain Road he was astonished at the prices artistic-looking furniture, more especially cabinets, overmantels, and Davenports, could be purchased at. He asserted that if the tariff of 35 per cent imposed by America on imported goods was removed, he could obtain the class of goods referred to cheaper than he could manufacture them; this, despite the fact that they were almost wholly made by hand. He also expressed his surprise at the few English cabinetmakers that emigrated to the States, whilst workmen of most other European nations come over freely. My reply was that the conditions of the workmen in England, though far from being perfect, were better than those in the countries referred to. "There would be no difficulty in getting work," was his rejoinder, "for if a hundred workmen arrived here in the morning, they would all get work before night." We then commenced a tour of the workshops and found, as we had found elsewhere, that the machinery was perfection, and every detail of work (with the exception of putting together) was accomplished by its aid. Whilst inspecting the finished goods in the extensive warerooms, I called the attention of the manager to the splendid quality of the wood in certain solid mahogany work, and expressed my surprise that wood of such a superior class had not been utilised for veneers. "Yes, it is very good," was his reply. "We get all our best mahogany from Liverpool." With the exception of the Phœnix Works I could find no firm that had supplied England with goods, and they only on one occasion, which turned out not to be a profitable transaction. They have quite enough to do, they say, to supply America, and do not seek work from elsewhere. Two-thirds of the furniture turned out at Widdicombs' factory goes direct to New York.

I was given to understand, before I left London, that if I got as far west as Grand Rapids it would not be necessary to go farther, as the machinery used was in every respect the most perfect. This statement was confirmed by workmen who had worked in other parts of the States. Having finished my investigation at Grand Rapids, my work as a member of the Commission representing the furnishing trades practically was at an end, so I started for New York, *via* Chicago and Pittsburg, a run of some 1,200 miles. One day was spent at the latter place, but it being Thanksgiving Day all workshops were closed, but I ascertained from workmen with whom I came in contact that the wages of carpenters are $3\frac{1}{2}$ for an eight hours day, and of cabinetmakers $4 for the same hours per day, the eight hours day being universal in Pittsburg. Leaving this town at seven at night we reached our headquarters at New York about eight o'clock in the morning.

On Thursday, December 4th, I commenced my journey homeward, having to embark at Philadelphia. This town, a quarter of a century ago, was noted for its woodworking industry, but I ascertained, on visiting the warerooms of Messrs. Potter and Woolf, Chestnut Street, that the greater portion of cabinet furniture, as well as office fittings, was obtained from the West, the firm only employing a few cabinetmakers for jobbing purposes. The bulk of the woodworking business in Philadelphia is the making of deal doors and sashes. As recently as three years ago, cabinetmakers in this town had to provide their own benches, a tax now (I am glad to say) abolished.

Leaving Philadelphia on December 7th, after a rough and tedious passage of 12 days I landed at Liverpool on December 19th, reaching London the same night.

The main impression gained from what I saw in America is that, if quality is to be considered as well as quantity, Britain can still more than hold her own as far as cabinetmaking is concerned. If employers having the means would speculate in laying down as perfect plants as those I saw in Grand Rapids, I am sure we should hear less about American competition. I may also point out that some such methods of production as those characteristic of the American factories already exist in many of the large Scottish firms, and in my opinion the fact that subdivision of labour is not carried to such extremes here as across the water gives us an advantage that is too lightly considered. In the American workshops the awful monotony of constantly performing some part in, say the making of a door for a cabinet, not only destroys the skill of the workman, but leads to lack of interest in his work and a general mental and physical deterioration.

There is no question that if a large hotel required 200 bedroom suites machine-made, and, of course, all of the same pattern, probably we would be beaten by the Yankees; but if, on the other hand, a mansion required to be furnished where a different style and design was desired for each apartment, then I am certain the work could be produced better and cheaper here than in America. In the States, as far as furnishing is concerned, everything is sacrificed to turning out arge quantities; there is no chance for indulgences in individual tastes for a distinctive style, as in England. Frequently in American-made furniture is to be seen a blend of Louis XV., Chippendale, and Sheraton; probably this accounts to a very large extent for the lack of business done by the American manufacturers in the British market.

The common statement that the American works harder than the British workman was not justified so far as my observation went. There was certainly no idling about, but close attention to work in hand would be a more suitable phrase to use, rather than working hard. Employers at Grand Rapids admitted that their workmen were not required to unduly exert themselves, and they certainly did not appear to do so.

The oft-repeated cry that America is slowly but surely taking the greater portion of our commerce, in the light of recent statistics, does not hold good. During the last quarter of a century we have increased our shipping tonnage two-fold, while that of America has largely decreased; returns prove that we did more general commerce last year than we have ever done before, while the exports of the States have materially fallen off and at the same time she has taken more goods from us than ever. Respecting the cabinet trade leaving us, how can that be when during the first eight months of the past year over twice the amount of timber was purchased for the manufacture of furniture than in the corresponding months of 1887?

In conclusion, I may state that I found far more consideration shown the workman in America than is the case in the old country, for if he has any grievance to complain of, or any suggestions for improvements in his employer's business, he can readily gain access to the head of the firm without the help of any intermediaries. There are also greater facilities for the workman providing for old age than there are in England; and to those of my fellow craftsmen who intend seeking wider knowledge, experience, and perhaps greater chances of betterment in their position across the water, my advice is not to allow the prime of life to pass before they venture on the journey.

Answers to Questions, by Mr. HARRY HAM.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. There is no doubt that he is.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. To adopt as far as possible the American method.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. I consider both to be highly essential.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. As far as my investigations went, 54 to 60 hours a week, against an average of 52 in England. New York and Pittsburg are the only places that work shorter hours—44 and 48 a week.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. More, but this is accounted for through the assistance of machinery.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. No. In our trade, hour or day work is almost universal.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. No advantage to either.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. Cannot say.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. I heard of no firm in our trade that adopts a bonus system.

Questions.	*Answers.*
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) Yes; if this was not so their services would be dispensed with. (*b*) Yes.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. No.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Welcomed.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) Yes. (*b*) It benefits the employer more than the workman.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. No. Black coat gentlemen are conspicuous by their absence.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. Yes; but not to any greater extent than in England.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Saw nothing in America as a guide respecting this.
18. Are the American employers more accessible to their men than English employers?	18. Yes; the men are treated far more as equals.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Undoubtedly.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Yes.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes. (*b*) Cannot say. (*c*) No; the goods as a rule being lacking in finish.

Questions.	*Answers.*
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) No. (*b*) This does not affect our trade, as wood-working machines invariably run at a uniform rate.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. A more perfect plant of machinery.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Yes. (*b*) A trifle higher, but not a great difference.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) No. (*b*) At least 30 per cent higher.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) Yes; there are more conveniences. (*b*) About 20 per cent higher. (*c*) Yes; through receiving better wages, and employment being more secure.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. This is difficult to answer. The hours worked in America vary from 44 to 60, wages from \$2¼ to \$3¾; in England, from 48 to 55 hours, wages from 7½d. to 10¼d. per hour.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Most favourably.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Undoubtedly.
30. If yes, does he *in fact* save more, or not?	30. I believe he does.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. I should say not, but betting is not indulged in to anything like the extent in England that some represent. As far as my experience goes, not more than 5 per cent of the workers ever have a shilling on a race.
32. Is the American working man more sober?	32. Yes.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. I believe not, but a human being is like a machine, the harder it is worked the quicker it wears out.
34. Is it true that the American workman is thrown out of work at an early age?	34. Not more so than in England.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. Statistics should prove this.

Questions.	*Answers.*
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. See foregoing answer.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. I believe this to be so, and, generally speaking, they are in a better position to do it.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. Yes. If the British workman got the same amount of money at command the conditions of life would become better.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39, 40, 41. Cannot express an opinion.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	

HARRY HAM.

Mosely Industrial Commission.

Report by Mr. W. DYSON, of the Amalgamated Paper Makers' Union.

In framing my report I will take the question of education first. There is no doubt that in this respect the Americans are far ahead of us, not only in the fact that it is free, but it is carried to a higher grade in the ordinary day or State school than is the case in this country, with the result that it arouses the interest of the scholars and creates a desire and a determination to further continue their education by attending the evening technical classes after they have left the day school and commenced work.

Leaving the question of education for the workshop, we also find the American up to date in every respect, both as regards machinery and the conditions under which the men work every encouragement being given to them in the shape of reward for initiating or suggesting any improvement in the management of machinery, and in the event of the production being increased thereby, the workman may rely upon getting a fair percentage of the profit accruing therefrom, whether he is on piecework or day wage.

Mechanical appliances for labour saving are also more largely used than is the case in England, making it much easier for the workman generally.

As regards the wages paid, they are at least 50 per cent higher than in England, though in many cases the quality and finish of the manufactured article is inferior to English make.

In comparing the spending power or value of the American wages compared to the English, I will take the house rents first, which are very high indeed, varying from $8 to $12 per month in the country districts, to $14 and up to $18 per month in the towns; these prices are for an ordinary six-roomed house.

Clothes also are much dearer. A suit costing about £3 in England would cost £4 to £4. 10s. in America. Food I did not find any dearer, and in some places rather cheaper, especially so in the agricultural districts. But for luxuries you have got to pay as follows:—Beer, 5 cents per glass; whiskey, 10 to 15 cents (and not very palatable at that); cigars 10 cents (in many cases not equal to what you get in England for 3d). If you want a glass of Scotch or Irish whiskey they will let you have it for 25 cents, and a small bottle of Bass's beer at the same price. Boots cleaned 5 and 10 cents, shaving 10 cents, haircutting 15 cents; so, although the necessaries of life are not much dearer than in England, the luxuries are very much dearer, and therefore, unless a man is very careful, etc., he can very soon spend the difference between the wages earned.

As this report deals principally with the better factories and workshops, I should like to remark that in others the conditions are not so favourable to the employé, either from the

hygienic or financial point of view, the result being that they are compelled to live in over-crowded tenement houses and under conditions which are far from satisfactory.

During my tour of investigation of the paper-making industry of America, I travelled about 4,000 miles, visiting mills at Niagara, Chicago, Appleton, Menasheh, Neenah, Glens Falls, Fort Edward, Sandy Hill, Warrensburg, Holyoke, Portland, Millinockett, and also several engineering manufactories whose specialities are paper-making machinery. The first thing that strikes a paper maker from the old country is the great natural resources of America, which are so valuable and so essential to the paper manufacturer, viz., plenty of good water for use and power, and an almost unlimited supply of wood for pulp making. These are resources which give the American manufacturer a great advantage over the British manufacturer, and they are a formidable factor in the situation when the products of the two countries are put on the same market. They form advantages over which we have no control; but when we leave the natural resources and go in the mill, there is no doubt we are also lagging behind, the mechanical equipment of the American mills being superior to the great majority of the mills in this country, not only in the machinery actually necessary for paper manufacture, but for labour-saving also. The idea of the American is, from the time the raw material enters the mill, to get as much of it made into the finished article in the shortest possible time, everything necessary in its manufacture being regulated by this desire. The beating engines, etc., are kept in the best possible condition for preparing the material for the machine; they are also run at a very high speed (in which in many cases the water power plays an important part), and the music of the "steel," which a beaterman so loves to hear, greets you as soon as you enter the beating-house.

Leaving the beaters for the machines we are at once struck with the business-like manner in which they are built for "making" paper, in many cases having wires from 60 to 70 feet long, first, second, and third presses, and from 22 to 30 cylinders, according to diameter. The majority of the machines are from 100 to 130 inches wide, but there are a good few from 130 to 156 inches wide, and in one or two cases they exceed that width by several inches, the wider being 163 inches. As regards the speed at which they run, we find there is a difference of opinion (as in England) as to the economy of running up to the limit of the strength of the material being used, and in answer to my question, what speed are you running, I very often got the reply, "420 or 440 feet per minute; we have run quicker, but find we do not get the same satisfactory results." If the average speed of the "fast" running machines is put down at the above-mentioned figure, it is not far out of it, although there are machines running 500, and in one case I was told 520 feet per minute.

I have dealt mostly with the manufacture of news, as it is with the importation of that class of paper that the British manufacturer has to contend; but even in higher grade papers, such as book, bond, and ledgers, the machines are built with the same advantages mentioned in the news machines, and do run quicker than the machines in this country making the same class of paper. As regards the work of the attendants working on these machines, it is no more arduous than it is upon the machines in this country, everything possible being provided to save labour; this is especially noticeable when putting on wires and felts, the heavy portions of the machines being raised and lowered by mechanical appliances, and in many cases the reels of paper are taken from the machines in the same manner.

Answers to Questions, by Mr. W. DYSON.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Yes; the education of the American lad is superior, and reaches a higher standard in the day schools than it does in England.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. It should be made equally efficient in England and entirely free; every child should be given the same opportunity, so that when they leave school to take up their trade or profession they may do so on an equal footing.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. I would suggest that evening continuation and technical education classes should be more numerous than at present, for in many cases it is impossible for those residing in country districts to attend evening classes, either through not being able to get there in time or being unable to pay the necessary travelling expenses.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. The hours worked in the paper mills in America are, in the majority of cases, from 7 Monday morning, to 6 Saturday evening; others work later, whilst some work until 6 or 8 o'clock on Sunday morning. As regards the comparison between American and English mills, the American certainly work longer hours, as the majority of the English mills stop at 2 p.m., though the remainder run on to 6, 8, and 10 o'clock on Saturday evening, and some until Sunday morning as in America.
5. Does the American workman do more or less in an hour, on the average, than the English workman?	5. There is very little, if any, difference between the two countries; the working at high pressure and the everlasting hustle ascribed to American workshops is a myth, and exists in imagination only.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. Not to any great extent in the paper trade, a fair day's wage being found in most cases to give satisfaction to both employer and employed.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. It was found to be of benefit in the great majority of cases, in some the reverse, mostly depending upon the principle of the employer.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No; every encouragement is given to the most skilled workman who is on piecework to earn as much as he possibly can.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. The system of paying premiums and bonuses for improvements and suggestions made by the employé is largely used in America, and frequently results beneficially to both.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) The majority do so, but there are both sorts, as in any other country. (*b*) Yes, to the extent that the best worker gets the best job, which often means higher wages.

Questions.	*Answers.*
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Yes; the wages paid for timework are such as will induce him to do his utmost.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Yes; they are appreciated by the workman for the reason that up-to-date machinery means less anxiety and better results for both.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes, and encouraged by offers of premiums and bonuses; if necessary, financial assistance is given to develop the same.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. (*a*) Not in the paper trade.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. The superintendents and foremen over the different departments are practically the same as in England (in the paper trade).
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. About the same in both respects.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. The good workman, whether English or American, will exert himself at times of special pressure, but there are good and bad in both countries, and in America, as in England, there is a strong objection to work overtime, the adoption of the eight hours day (in many cases) being proof of the fact.
18. Are the American employers more accessible to their men than English employers?	18. I made many inquiries on this point, and I consider there is very little, if any, difference between the two countries.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes; there are naturally more opportunities for the working man to rise in America than in England, as new mills are constantly being erected, and consequently the demand for men is much greater.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Yes; on the average very much better.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes. (*b*) No; I don't think so. The majority of managers I met in the paper mills were men who had risen from the ranks, and, though not University trained, their standard of education was much higher than in England. (*c*) No; but they turn out the same quality in greater quantity.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. (*a*) Both; but the greater proportion is undoubtedly made by the greater speed at which their machinery is run.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Yes; improved machinery, to run at a higher speed, rewards for the encouragement of suggestions, etc., and efficient ventilation and sanitary arrangements.

Questions.	*Answers.*
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Yes; they are paid better and they live better than the English workers. (*b*) There is very little, if any, difference.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) No. (*b*) Very unfavourably; a suit costing in England £3 would cost at least £4 in America, and in some cases £4. 10s.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) No. (*b*) Very unfavourably, being 75 to 100 per cent higher than in England. (*c*) Yes, in the country districts especially so, which I attribute to the higher wages paid and the reasonable price of land.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. I should estimate the average wage in American paper mills for skilled labour to be 25s. per week higher and unskilled 10s. per week higher than in England.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. I estimate the value of wages as follows:—That 16s. in England is about equal to 20s. in America.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. Yes, if he is as described in question 29; if he is not, luxuries are very dear, and he can easily spend the difference between the wages earned.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No; there is practically no betting on horse racing in America, only what takes place on the racecourse.
32. Is the American working man more sober?	32. Yes, for which there are two very strong reasons—first, that drink is much dearer, and, secondly, that the alcoholic strength is much lower than in England.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. No.
34. Is it true that the American workman is thrown out of work at an early age?	34. No.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. No.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. A much smaller proportion.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. Yes. I attribute the difference to the higher wages earned, which enables them to do this.

Questions.

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

Answers.

38. Yes. The great majority of American workmen certainly follow their occupation under more favourable conditions than the English workman, there being more attention paid to sanitary arrangements, ventilation, etc., which of course tend to keep a man fresh and more active, and therefore likely to do a better day's work than if working under other conditions. In the above respects, and in the encouragement for suggestions, I think we might with advantage copy the Americans.

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?

39. Yes.

40. Could an organisation on the same or somewhat modified lines be introduced into England?

40. Yes.

41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

41. Yes; personally I am strongly in favour of establishing a similar organisation in England, as anything tending towards the settlement of disputes without resorting to strikes must commend itself to all concerned.

Wm. Dyson.

Mosely Industrial Commission.

Report by Mr. C. W. BOWERMAN, of the London Society of Compositors.

[Mr. Bowerman *was one of the party that travelled viâ Canada, through Quebec, Montreal, and Toronto, and his report opens with an account of his impressions of those places. He next went to Niagara, where he visited some of the factories that depend on the Power Works, and to Buffalo, where he inspected the harbour, etc.*]

We reached Niagara on the 12th November, 1902, where we remained until our colleagues from New York joined us. To endeavour to describe or in any way attempt to convey an impression of the grandeur of Niagara Falls would indeed be entering upon an impossible task, and I can only say that to me it appeared the sight of a lifetime, the impression of which cannot fade from my memory.

During our stay in Niagara we visited the Shredded Wheat Factory, described as the Natural Food Conservatory, "the largest and finest building in the world devoted to the preparation and distribution of food." Built as it is, upon an imposing site overlooking Lake Erie, and surrounded by trees and grass lawns, the six-storey building has indeed an appearance richly meriting the description given to it by those directly interested in the concern. The ground cost $50,000, and the building $2,000,000. Each floor in this model factory is lofty and spacious, and as the building stands alone, the light throughout is admirable. We witnessed the entire process, from the moment when the wheat is emptied into the mill, the dust blown into a sealed chamber, and the corn automatically sorted and conveyed to the ovens without being touched by human hands, the work being done entirely by machinery. The men and women workers (who were all union) were in receipt of excellent pay, but working ten hours per day, with two half-hours for meals. A splendid concert room, with grand piano, had been provided for them, in which, beside musical entertainments, lectures were occasionally given, and, in addition, each was provided with a separate open ironwork locker for clothes, with further accommodation for the storage of bicycles. Marble-walled shower-baths, with nickel-plated fittings, were likewise fitted up for the use of the workpeople—their comfort and convenience apparently being studied in every possible way. The manager and all connected with the factory were extremely courteous, and afforded the delegates the fullest information and the opportunity of thoroughly inspecting a concern of which all connected therewith may justly feel proud.

We also paid a visit to the power-house of the Niagara Falls Power Company, which supplies electric light and power to Niagara and the various industries in the district, as well as to Buffalo and intermediate districts—covering an area of about 24 miles. Ten turbines (each 9 feet in diameter) were in use, each representing 5,000 horse power, the water being drawn from the river 1¼ miles above the Falls by means of an inlet canal, the wheel-pit having a drop of 150 feet, the water passing through a tunnel 29 feet by 18 feet, and 7,000 feet long, cut through the rock 200 feet underneath the city, and emptying into the gorge below the Falls. A second power-house is in course of construction, which, when completed, will make a total of 21 turbines, or more than 100,000 horse power. On the Saturday preceding our visit a party of Canadian students had visited the Canadian side of the Falls, the ultimate intention being to erect power-houses on that side of the water, so that eventually the combined power derived from Niagara Falls will represent something like 400,000 horse power. Visitors can enter the power-house at any time upon

payment of a nominal fee, which goes towards the endowment of beds at the Niagara Falls Memorial Hospital and for the purposes of the company's beneficent association.

Our stay at Niagara concluded with a visit to the works of the Carborundum Company, where, as a result of a new discovery, a substitute for emery was being produced, to be used for various kinds of polishing purposes, the men (mostly foreigners) working 58 hours per week, with a minimum payment of $1½ per day. In this instance, also, the visit was most interesting.

We also saw another large factory in Niagara engaged in producing paper made from timber, large stacks of which were piled up outside the works; paper buckets also being a speciality of this particular firm.

Although my visit to Buffalo (like many others) was a somewhat hurried one, I was enabled to run through two printing offices—that of a daily paper and a jobbing office, the largest in the city—thanks to the courtesy of Mr. F. Howard Mason, secretary of the Buffalo Merchants' Exchange. The proprietor of the daily paper, like many other employers with whom I came into contact during the tour, was perfectly willing to allow me to make a thorough inspection of the office. The men were working on 'stab, seven hours per night, the paper being mainly produced by means of the linotype machine. They were working comfortably, and in some cases smoking whilst at work, apparently a very common practice in the States.

Cleveland was the next city we visited, and in Euclid Avenue I am bound to admit that it possesses "one of the finest thoroughfares in the world"—or, at any rate, the finest it has been my privilege to set eyes upon. Our visit to Cleveland was made memorable by the banquet given to the Commission by Senator Hanna at the Union Club House, who, with the Mayor of Cleveland, was also present at a reception and smoking concert given to the delegates on the Sunday evening by the Trades and Labour Council, who also arranged a trip up the River Cuyahaga and round the harbour on the Saturday, as well as drives on the Sunday to the Rocky River, the Park, and the Garfield Memorial. I had a long chat with the proprietor of the *Cleveland Leader* (started in 1848), who told me that he was about to introduce into the office a machine to automatically lead linotype bars, from pica to nonpareil. The paper is published morning and evening, the minimum rate of pay being $24 for 54 hours' work, although the average upon the week works out at less—more nearly approaching seven hours per day. I also visited the Cleveland Printing and Publishing Company's Offices (the Imperial Press), a large and well-arranged office. No shafting was to be seen in any part of the office, composing machines and printing presses alike being run by electricity; motors had been applied to the old as well as to new machinery.

The rates prevailing in Cleveland were as follows:—

Composition—handwork—on 'stab: From November 1st, 1902, $16.50 (previously $15), increasing to $17 during the present year (1903), and to $18 during the following year, when the 48 hours working week will become operative.

Linotype operators, $21 for 48 hours day work, $24 night work.

Cropper hands (men) $13 per week.

Machine tenders, $17 per week.

I visited another large office, in which an evening paper was being produced; 11 editions were produced each day, the first at 9 in the morning, and the last at 5-30 o'clock. There were 11 linotype operators and 13 hand compositors, each receiving $21 for a 48 hours week. One of the linotype (pica) machines had been fitted with an automatic metal feeder, the only one of the kind I saw. Since the introduction of the machine the paper had been increased in size 50 per cent—from eight to twelve pages. One of the smartest things in this office was an automatic galley press, requiring no sidesticks or quoins, the slugs being placed on the galley

and inked, and the proof pulled in a matter of seconds. One of the composing machines was being run by electricity. In the machine room three newly-patented Goss machines had been fitted, running at the rate of 370 copies per minute.

In the offices I visited the men appeared to be working comfortably, and there was a distinct absence of the "hustle" which one had expected to find without having to hunt for it Cleveland employers in the printing business—especially contracting printers—complained that, unlike some industries, their trade appeared to be unable to produce millionaires, the publishers, they claimed, getting the cream of the profits.

After I had visited one of the leading lithographic firms—W. J. Morgan and Co.'s—engaged in turning out theatrical and general entertainment work of a high order, both from the point of view of design as well as of colours and execution, the head of the firm kindly arranged an interview with a firm of mechanical engineers who, amongst other things, had for some years been engaged in endeavouring to perfect a process of printing entirely without the use of type, and partly by means of lithography. At the interview in question—which was to me necessarily of a particularly interesting character, despite the fact that the most advanced of the three machines was still in an experimental condition—we were informed that some thousands of dollars had been spent upon each of them, but that the machine was not at present on the market, certain mechanical difficulties still remaining to be overcome.

I was greatly struck with the cleanliness of the printing offices I visited, as well as with their light and lofty appearance. The block, or square, system of building prevailing throughout the States is the means of providing those two necessary but, generally speaking, frequently-lacking essentials in a printing office—light and air. From my inquiries into the general condition of the workmen engaged in the printing trade, it appeared that their wages averaged about one dollar per day more than here, and that although house rent might be somewhat dearer, the price of food did not prevent meat being partaken of three times per day.

From Cleveland we journeyed to Chicago, one of the most interesting visits being to the Armour Institute of Technology, founded by Philip D. Armour, in 1892, a magnificent building—or, rather, buildings. The subjects taught in the Technical College are mechanical, electrical, civil, and chemical engineering, and architecture; the Armour Scientific Academy also prepares students to enter either the Technical College of the Institute or the leading Universities and Colleges in the eastern and western States. No expense appeared to have been spared in keeping the engineering, electrical, and other departments thoroughly up to date so far as equipment was concerned; and it was stated that the Institute shows a deficiency each year of between $75,000 and $80,000, which is cleared by the founder. Admission to the Technical College is by examination, at a fee of $75 per year for students enrolled during the year 1901-2, and of $60 for the Scientific Academy; but for new students entering in 1902-3 the fee was to be increased to $125 per year for the Technical College, and to $90 for the Scientific Academy.

As in Cleveland, I was much struck and pleased with the exceptionally clean and light. appearance of the printing offices I visited in Chicago—particularly the jobbing officess Compositors in the latter were receiving $17½ per week of 54 hours; linotype operators $21 (in many instances $24), for day work, and on daily paper work $6 per night of seven hours. By agreement, one apprentice to four men can be employed in the machine-room, and one to seven journeymen in the composing-room (formerly one to four). The nine hours working day was general in the printing trade, and in the summer time the day-workers left at one o'clock on the Saturday, and in some cases at that hour all the year round. In one of the offices I visited women compositors were employed; they were in receipt of the same rate as the men, and were

also members of the union. In another (a daily paper office) in which 43 linotype machines were in use, I failed to find any trace of the feverish "bustle" which unconsciously I had been led to expect—in fact, I have seen men at home working at much higher pressure upon a precisely similar class of work, and equally as exacting so far as the necessity of economising time is concerned. But the equipment of the office appeared to be all that could be desired—machinery up to date and well cared for, material plentiful, and the office planned and supplied with the sole object of saving time and labour. The result was that the work proceeded easily and smoothly, and apparently with less strain upon the compositor's physical exertions. In the office of another daily paper, of which nine editions are published each day, necessarily following each other in fairly rapid succession, it was interesting to note the fact that an automatic cigar-machine had been "fixed up" in the centre of the composing-room, from which the compositor upon dropping the universal nickel (5 cents) into the slot, could at any moment of the day be supplied with an exceedingly good union-made cigar, "for consumption on the premises."

In conversing with members and the officials of the Chicago Typographical Union upon the question of machinery and the effect of its introduction into the trade, they agreed that at first it had had a most disastrous effect, so far as the displacement of labour was concerned, but that since its introduction wages had been raised and the working hours reduced, and that, as the result of cheaper books and the issuing of considerably larger newspapers, there were now as many men employed as formerly—a view of the question, however, that was not entirely shared in other directions.

The printing employers of Chicago, as indeed of other cities, appeared to be keenly—if not feverishly—alive to the desirability of introducing the newest and most modern machinery into all departments. Especially was this noticeable in the case of ordinary letterpress and colour-printing machines in jobbing and book offices, an all-round desire appearing to prevail on the part of each employer to "go one better" than his neighbour. In one case the employer stated that, by force of competition, he had had to throw aside almost new machinery to make room for newer and more "up-to-date" plant. As an illustration of what he termed the "push" of American as compared with English business methods, he instanced an experience of his own when, during a visit to this country, upon being taken through the machine-room of a certain printing office, and inquiring as to the use and merits of a machine which was then running, he was informed by the employer that it had been in his office for over thirteen years, and that when he bought it it was second-hand.

Before leaving Chicago I inquired very closely into the cost of rental, living, and clothing, and of men who had worked for many years in England, and who consequently were able to compare the one country with the other. Although house rent—or rather the rent of tenements—was much higher, I was assured that in some instances food was considerably cheaper, and, so far as meat was concerned, better in quality. Beef was purchasable at 4d. and 5d. per lb.; mutton, 5½d. per lb.; porter-house steak, 9d. per lb.; bread, 2½d. per two-pound loaf; groceries dearer than in London; men's clothing about the same; boots, cheaper; linen, dearer; and coal, 18s. per ton.

From Chicago we went to Dayton to visit the National Cash Register Works, passing through the oil-fields district, which, with its hundreds of huge iron oil-tanks, presented a very quaint aspect. The large factory had a most imposing appearance, and in every department a printed notice was conspicuously posted as follows:—

"BULLETIN.

"The flags are up in honour of a large party of skilled English craftsmen, who are touring "this country to investigate American manufacturing methods, and will visit our factory to-day.

"This is the most important delegation of visitors we have ever received, and it should be our "earnest effort to give them every opportunity to investigate whatever interests them."

Accompanied by the managers of the various departments, who had received special instructions from the head of the concern to stand aside in the event of the visitors desiring to question any of the employés as to their wages, working hours, and general conditions of employment, a thorough inspection was made of the factory, which proved to be wonderfully interesting and satisfactory, the conditions under which the three thousand employés were working being in every sense admirable. All the girls had received a high-school education, and (like the men) were in receipt of good wages. As an indication of the extent of the business, it may be stated that 30 compositors (union men) were employed on the premises doing work directly connected with the firm's business, and working under conditions which it would be extremely difficult, if not impossible, to improve. Just inside the factory a notice was displayed, stating in three lines of bold letters, "Improved Machinery Makes Men Dearer, Their Products Cheaper," and the manager, in welcoming the visitors, stated that Americans were never content to do anything by manual labour that could be done by machinery. As in the case of the Chicago stores, good suggestions were welcomed, and rewarded by money prizes. Beginners received a minimum wage of five dollars per week, and the manager (who was under 30) had started in the works as an office boy. The overseer of the composing department had recently been given three weeks' holiday in which to visit Boston, New York, and Washington for the purpose of seeing the best of everything in the trade that could, with advantage, be introduced into the factory. The first machine was put up in a coalshed, the starting point of the factory, which at the time of our visit was turning out 200 machines per day.

From Dayton we travelled to Pittsburg, a city of, one might say, eternal smoke, with some fine buildings, but very narrow thoroughfares. From the south side of the river, the place, with its overhanging dense pall of black and white smoke, presented a most weird sight. Here, as elsewhere, the wages of printers were considerably higher than in England, jobbing compositors receiving a minimum of 16 dollars per week for day-work (eight hours). In all branches of trade, it was stated, wages ruled much higher than in the old country, food being about the same, but house rent much dearer. We met several Englishmen who had been in the States many years, and who expressed themselves to the effect that they had more freedom in comparison with the conditions governing them when in England, that they enjoyed greater equality as between man and man and were in every sense better off, and that machinery was at the bottom of their successful methods.

Our next journey was to Philadelphia, the run from Pittsburg being most interesting, through the Alleghany, Tuscarora, and Blue Ridge Mountains, the land (particularly from Altoona to and beyond Harrisburg) being well cultivated, with plenty of water, and with a decidedly English appearance. In Philadelphia, as elsewhere, much higher wages were being paid than in England, the minimum rate for night-work (eight hours) being 25 dollars, the men in the office I visited receiving 27 dollars. The office was well equipped with the newest and fastest-running machinery, but I saw little difference as compared with several offices I had seen in London and the provinces. Having to leave for Washington the same night, I was unable to visit any of the jobbing offices of the city.

During my stay in Washington I was enabled to visit the Government Printing Office, as well as some of the other offices. In the State office 1,300 compositors were employed, at 4 dollars per day for a working week of 48 hours, leaving each day at half-past four o'clock; in the bookbinding department, 565 men at 4 dollars per day, and 1,000 females at 2 dollars per day; women also being employed in the machine-room as layers-on, at 2 dollars per day. All the

machines (63 in number) were run by electric power. A new building (adjoining the one then in use) was to be taken over in the following March, the business having largely outgrown the old premises. In this, as in other offices, the printing, binding, and cutting machinery was of the very latest pattern, and the office was, as one might naturally expect a State office to be, in every respect a model one. It was mentioned that whereas in former days the men and heads of departments had to go out with the Government, such a practice no longer prevailed, their employment being now of a more secure and settled character. At the time of my visit 10,000 copies of "The Farmers' Handbook" were being printed, for free circulation; also 50,000 copies of an "Agricultural Report," of 1,000 pages, also to be issued free, the State giving every encouragement to those engaged in the farming industry.

A visit was also paid to the Patent Office, and Commissioner Allen explained at considerable length the laws bearing upon the subject. It was apparent from the low fees charged that every encouragement was given to workmen in the direction of enabling them to patent their inventions, a fee of $15 being payable when the patent is lodged, and of $20 if letters are issued. The State appoints experts to thoroughly examine into the merits of each application, thereby materially assisting the inventor so far as the avoidance of litigation is concerned; the patent, if issued, running for a period of 17 years.

Visits to the President, at the White House, and to the British Ambassador, at the Embassy, as well as to the Capitol and the Congress Library, made the visit to Washington a memorable one, and a most interesting interview was obtained with Commissioner C. D. Wright, the head of the Labour Bureau, who in a speech to the delegates dwelt largely upon the advantages of machinery, and the improvements in industrial conditions which, he claimed, had resulted from its introduction.

From Washington we travelled to New York, arriving on the eve of Thanksgiving Day. In this city both daily and jobbing offices were visited, in the former men receiving from $27 to $30 per week of eight hours per night for night-work, and in the latter, $19½ for case hands for a nine hours day (formerly $18 for a ten hours day), and $21½ for linotype operators for nine hours work; printing machine tenders receiving from $19 to $30 dollars per week, according to the number of machines to be looked after. With regard to the daily paper offices, their equipment, generally speaking, was similar to that of similar journals in London, with the exception that nearly all the American papers freely indulge in illustrations, the blocks being produced and electrotyped on the premises, and in weekly editions (most bulky productions) containing coloured and so-called humorous illustrated sketches, the like of which are happily unknown in English daily papers. It is no unusual thing for the weekly—*i.e.*, Sunday—edition of a daily paper to consist of sixty-four or even more pages, which are printed in sections, one being devoted to financial matters, another to general and sporting news, a third to women and children, a fourth being termed the comic section, and so on. To contend with the large number of stereotype plates required for such an issue, a new machine (the Autoplate) has been introduced, which it was claimed was capable of automatically casting, trimming, and cutting plates at the rate of about 3½ per minute. I saw the machine in use in an office in which, I was informed, it was customary to cast on Saturdays, between the hours of four p.m. and three a.m. the following morning, as many as from 1,600 to 1,900 plates in connection with the Sunday edition.

In one of the largest of the jobbing offices, producing a weekly journal with a circulation of over 400,000, everything was of the newest and most approved fashion, the press-room and bindery, particularly the former, being exceptionally large and lofty, and kept scrupulously clean. The plant comprised six-colour machines, taking a sheet 46 by 60; another machine

printed 144 pages at each revolution, in sections of twenty-fours. At the time of my visit the firm were publishing an edition of thirty-two volumes of "English Classics," at 18 dollars, printed on rotary presses, bound (gilt top) and turned out at the rate of 10,000 to 12,000 books per day, their plant enabling them, they claimed, to do 15,000 per day, if required. They were packed in boxes on the same floor, and transferred to trucks ten blocks away, upon a railway running for a clear 3,000 miles as far as San Francisco.

An interesting visit was the one paid to the offices of the American Planograph Company, established to introduce a new machine to produce printed matter without the aid of type, similar to the one I had seen in an experimental state in Cleveland. In this instance, however, the machine was in full working order. The inventor was most enthusiastic in his estimate of its capabilities and possibilities, claiming that it would help and raise the art of lithography, but would entirely "knock" that of typography. The machine, which weighed only 50lb., occupied a space of 3ft. by 2ft., had 40 keys on the keyboard, with five characters or impressions in each, which governed five wheels having 195 characters. The characters were printed on transfer paper, the print being transferred to a metal plate, which was placed upon the cylinder, the printed impression being taken from this smooth surface. The inventor claimed that from surface printing a sharper face and greater uniformity of tone could be obtained; that by the new process no metal or gas was required, the machine being manipulated by means of compressed air; that by the zinc process the matter could be transferred in 1½ minutes, and on the machine, ready for printing, within three minutes; that 50,000 ems of self-spaced matter could be produced in a day of six hours; and that, under the most favourable conditions of linotype or monotype work, there would by comparison be a saving of 50 per cent. Allowing for enthusiasm on the part of the inventor of the new machine, who in the course of his explanation described printers as door-mats for publishers to wipe their feet upon, the fact of its being shown to be possible to print without the aid of type and from an absolutely smooth surface necessarily arrested attention, and, in addition, it was none the less surprising to find that an equally good impression could be obtained from three thicknesses of paper fed into the machine, one after the other, the first being a sheet of ordinary news paper, the second a sheet of soda-fibre paper, and the third a sheet of tissue-paper. Blocks were also printed in the same manner—from a smooth surface—the impression being exceedingly good. The practicability of such a system of doing work, remarkable as the initial results undoubtedly were, appears to be extremely improbable; but the fact nevertheless remains that matter has been printed in the production of which type bodies were neither set nor cast, the composing machine printing the character on transfer paper, the justification of the lines being entirely automatic and without calculation on the part of the operator; and that the print was transferred to a smooth metal plate, and printed on a cylinder or rotary press absolutely without make-ready.

In the various cities which I visited, I made close inquiry into the speed at which the various grades of printing machines were being run, it having been frequently stated in this country that the output from precisely the same class of machine was not so great here as in America. The result of the inquiries was to establish—to my satisfaction, at any rate—that the difference in question was more imaginary than real. Whether the machine was producing colour work, high-class block work, or the customary letterpress printing of an ordinary jobbing or newspaper office, I failed to discover that anything like the difference claimed by English employers as prevailing between the two countries had any real existence; in fact, the output appeared to be as nearly as possible the same. In the case of the printing machines—which, as already stated, in nearly every instance were absolutely and completely up to date—as in that of the different composing rooms, it was evident that the strictest attention was given to the cleanly condition

not only of the machines, but also of the rooms in which they were placed—two factors productive of benefit and advantage to all concerned.

As bearing upon the conditions under which workmen and their families were living, an interview was obtained with the Secretary of the Tenement House Commission, a new department instituted in 1900, who stated that in Brooklyn and New York there were 80,000 tenement houses—*i.e.*, houses occupied by more than three families—and that since the formation of the Commission they had received as many as 150 complaints per day regarding insanitary conditions and want of light and air. In some houses of four floors, 14 families were living; and in some of six stories—double-deckers as they are termed—22 families, who for four rooms would have to pay from $12 to $18 per month, and for three rooms from $10 to $15 per month. Three thousand people were living in one large block. The Secretary stated that under the new law 106 inspectors had been appointed (making a total of 200), who acted under the Medical Officer of Health, and that a large sum of money had been spent at Albany, by owners of houses, and builders and estate agents, in order to endeavour to defeat the Bill.

A visit was also paid to the Education Department of the City of New York, the supreme authority in educational matters, the State only interfering in the event of the department not doing its duty. The average yearly increase in the number of pupils was about 25,000; and $8,000,000 had been granted that year for sites and buildings. Education was absolutely free up to the door of the University, so far as New York was concerned; but in most States, University education also was free. There was no limit of age in evening school work, adults being welcomed to such schools, which were largely attended by foreigners. Before leaving New York, visits were also paid to the Penitentiary and to the Workhouse.

Answers to Questions, by Mr. C. W. BOWERMAN.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1, 2, 3. Time did not permit of close inquiry into the matter; therefore, I cannot fairly express an opinion upon the point. But I was agreeably struck with the bodily uprightness and freedom of movement which characterised the school children—both girls and boys—due to the excellent system of physical training prevailing in American schools.
2. If yes, what changes would you suggest in the English system of education for the working classes?	
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. American workmen in the trade with which I am identified, I am satisfied, are in receipt of considerably higher wages than are being paid in this country.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. As a general rule they do not appear to work harder, if so hard, although the hours of labour are somewhat longer than those prevailing in this country.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6, 7. There appears to be a much larger proportion of timework than of piecework employment, which, presumably, gives satisfaction to both employer and employed.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	

Questions.	*Answers.*
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. I had no opportunity of fully inquiring into this, and can only reply that American workmen, by comparison with English workmen, are well paid.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. Apparently, yes.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. Undoubtedly, as in England.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Yes; that appears to be the prevailing system in some trades.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Apparently, yes.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Several instances were brought to my notice where such suggestions have been rewarded.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen,or does either side reap an unfair advantage from it?	
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. I did not notice much difference between the American and the English system of overlooking, but if any difference exists it is in favour of the American workmen, who certainly appeared to have a fair amount of freedom from what may be termed exacting overlooking.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. No opportunity of judging.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Yes; as we do in this country.
18. Are the American employers more accessible to their men than English employers?	18. Judging from my experience as a member of the Commission, and bearing in mind the treatment and courtesy extended to me by employers throughout the cities visited, I formed the conclusion that they are readily accessible to their men.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. With regard to the question whether or not there are greater opportunities for the working man to rise in America than in

Questions.

Answers.

England, I can only cite the cases of many Englishmen who are occupying prominent and responsible positions in some of the offices I visited, as well as many of the large manufactories in which the heads of departments have started from the lowest rung of the ladder.

20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?

20. In the case of the larger, and what may be termed special, factories—such as at Dayton–the sanitation, ventilation, and general comfort of the workers were far ahead of anything I have seen in this country; and in the majority of the offices I visited the general conditions were decidedly good, the method and style of building throughout the States assisting greatly so far as light and air are concerned—two most important and essential features so far as the worker in the printing trade is concerned.

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

21. (*a*) In some respects I am inclined to believe that American printing offices are better equipped for production, in the shape of labour-saving appliances, than is the case in the general run of offices elsewhere. (*b*) With regard to the question whether the factories are better managed, or a greater proportion of University-trained men employed in management than is the case in England, the system appears to be to appoint none but practical men as heads of departments, which, from a business point of view, should naturally be an advantage. (*c*) But I do not believe for one moment that American factories turn out better work than is produced here; in fact, quite the reverse is the case.

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

22. Not there sufficiently long to form an accurate judgment, but the men generally work longer hours.

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

23. There are many points in American practice which I should not like to see introduced into English factories.

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

24. American workers are able to keep a better table, food, meat, etc., being considerably more reasonable in price than in this country; fruit, also, is very plentiful and exceedingly cheap.

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

25. They are as well clothed, and at about the same cost as here.

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?

26. They are not so well or so comfortably housed, so far as the larger cities are concerned, and they have to pay higher rents than is the case in England. I cannot state

Questions.	*Answers.*
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	whether more or fewer of the workers own the houses they live in.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. An average of about one dollar per day more than in England.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. With the exception of house rent, about the same as here.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29, 30. Wages being generally much higher, and taking into account the difference in the cost of rent, I am satisfied that a careful, sober, and steady man is in a considerably better position to save money in America than in England; but I cannot state whether or not he does so.
30. If yes, does he *in fact* save more, or not?	
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. I had no opportunity of ascertaining the extent to which gambling on horse-racing or any other branch of sport entered into the life of the American workman.
32. Is the American working man more sober?	32. I formed the opinion that, as a rule, the American workman is fairly abstemious.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. No opportunity to form an opinion.
34. Is it true that the American workman is thrown out of work at an early age?	34. No opportunity to form an opinion.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?	35. With regard to the question *re* the average life of the American workman being shorter than that of the English workman, I was unable to obtain the particulars that would have enabled me, and with interest, to have made the comparison with our own statistics.
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. No opportunity to investigate the matter.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. No opportunity to investigate the matter.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. I consider the general conditions of life of the American workman, and his prospects of success, somewhat better than they are here at the present time.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39, 40. With respect to the question as to whether I approve of the working of the Civic Federation, and if an organisation on the same or somewhat modified lines could be introduced into England, I should welcome
40. Could an organisation on the same or somewhat modified lines be introduced into England?	

Questions.	*Answers.*
	any movement having for its object the bringing together of employers and employed for the purpose of settling terms and conditions of employment, or of amicably arranging disputed points.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. In my opinion, they are favourable to the establishment of any organisation having the above objects in view.

With respect to many of the above questions, interesting as they may be from a general point of view, I am of opinion that in the present instance the superiority of one set of workmen in comparison with another set has little to do with the question. In the first place, I do not admit that the superiority exists; and, secondly, if it did, it would not account for the strides which America has made in the commercial world during the past few years. To me, after the interesting and instructive journey which it has been my privilege to take as a member of the Commission, the reason seems more likely to be found in the rapid development that appears to have taken, and is taking, place in the industries of America, the huge natural resources at the command of its inhabitants, and the fact that at Pittsburg, Lackawanna, and many other districts throughout the States, a concentration of effort has taken place, the full effects of which are now being felt in the commercial world. The surprise and pleasure to me is that this country, with its, by comparison, limited resources, should have been able to lead the world in commercial as it has in many other matters, and although it is the duty of this as of other countries to neglect no opportunity of maintaining and increasing its own prosperity, as we shall continue to do, I am more than satisfied, from personal observation and inquiry, that in the present instance the question of the workmen's superiority or greater keenness has but the remotest bearing upon the question at issue.

C. W. Bowerman.

Mosely Industrial Commission.

Report by Mr. GEO. D. KELLEY, J.P., of the Amalgamated Society of Lithographic Printers of Great Britain and Ireland.

In endeavouring to give a report of my visit to the United States of America as one of the Mosely Commission, I purpose confining myself largely to my own trade, that of lithographic printing; to other members of the Commission will be left the duty of dealing with their own particular industries, although certain questions which alike affect the general community must be referred to. The question which in my opinion was of greatest importance was that regarding the high wages paid in America to ordinary workmen employed in lithographic printing, which, at the same time, leave the employer in a position to compete successfully with employers in Great Britain and other countries in obtaining orders. The question whether improved machinery is in operation in the States which we have not the advantage of, formed another important subject for inquiry, as also that of the education of the industrial portion of the community, whether it is higher or superior to that obtainable in this country. It may here be stated that the question of education in America claimed considerable attention from all the members of the Commission, but so far as I am personally concerned, will only be dealt with in a brief manner, not because the question does not warrant its being extensively dealt with, but because so much has been written by experts in regard to it that I do not feel called upon to do more than give an opinion or give expression to certain impressions formed during my visit.

America has already recognised and acted upon the fact that education is an important factor in the success, prosperity, and well-being of a nation. Efforts are being made in every country to improve the system of education, but more particularly in those countries which in a commercial sense press us closest. Our own country has begun to recognise the necessity for better education, but the Government of the country and many of the Municipal Corporations of our various towns and cities are not yet fully convinced of its absolute necessity, although the noble and imposing structure recently erected in Manchester goes to prove that the Corporation of that city are not amongst the laggards of municipal thought and action who by their apathy are rendering assistance to other countries in the great trade competition, which is greater now than at any time in our previous history.

We had an opportunity of inspecting what to me is a new method of teaching, by which children can be taught to read before they know the alphabet, taught to write without a copy-book, and acquire a knowledge of arithmetic without the aid of the multiplication table. At present no particular name has been given to the system, but those who agree with it, believe it to be made up of some of the best and most practical theories yet advanced by those who study the different means of imparting scholastic instruction to children. The opinion I formed during the visit was that the method referred to tends to develop the mind and to quicken a child's perceptions more rapidly than can be claimed under our present system. The idea before the word is the important method adopted, and the recognition of words is the first teaching given to a child entering a New York school. Necessarily the black-board plays an extensive part in the work, as the teaching is entirely objective. Arithmetic is also taught by the same system of

recognition, and practically the same object lesson is taught in all the primary grades, and it may be added that the same system applies in regard to grammar. In fact, the old plan of teaching is disappearing, and it is claimed that children learn reading, writing, and arithmetic more quickly and better under this system, and show better results than can be claimed under the old system. The brevity of this report prevents it being used to convey illustrations of the system under notice, but I would venture to suggest that, if it is not in operation in this country (and my somewhat limited knowledge in respect to the methods of teaching in our public schools does not permit me to state whether it is or not), we might with advantage give attention to it, and consider whether its introduction would not be advisable and beneficial in the interests of the rising generation, who, in the future, must of necessity exercise an important effect upon the destiny of the nation, commercially and otherwise. We had also every opportunity of obtaining a knowledge of the technical training given American youths to fit them for industrial life. The thoroughness of the teaching given by tutors, who are practical in their respective industries, leaves little to be desired. The technical schools of our country are excellent institutions, and are intended to do exactly the same work as that which came under our observation in America; nevertheless, whilst going through these institutions, the impression seems to gather that the practical ideas taught and put into operation were more likely to fit the youth for the task of upholding and advancing the industrial position held by America at the present moment than the one in operation at home. Theory is very necessary, but practice is of greater advantage, and the practical teaching received by the American youth in the workshop attached to the various colleges is of great advantage, and tends to develop their innate powers and, from a scientific standpoint, is almost all that can be desired. We have abundant evidence of the value of practical teaching in this country, and the excellent technological schools recently opened in Manchester will give the rising generation of this country, who may be able to avail themselves of it, a scientific and mental equipment quite equal to that given in similar institutions on the American continent.

We landed in New York and afterwards visited Schenectady, Albany, Niagara, Buffalo, Cleveland, Chicago, Dayton, Cincinnati, Pittsburg, Washington, Philadelphia, Boston, Newark, and back to New York. I do not purpose referring to any of the immense engineering works or factories which were visited by the Commission, with the exception of that of the National Cash Register Company at Dayton, Ohio, a most unique establishment of immense size, employing over 3,000 hands, where everything is kept scrupulously clean, and every known device used to expedite business, whilst at the same time the happiness and well-being of the workers is well looked after. In the printing and bookbinding department, the largest in the States of any private company doing its own work only, the machinery in use is of the most modern make and of the most improved kind, including that used for three-colour printing. So far as we were able to see, everything having for its object the health of the workpeople has been introduced into the factory. They receive good wages, are well dressed, and self-respecting.

In respect to my own trade, about which I most particularly concerned myself, I can say that every opportunity was afforded by the management of the different establishments in the various centres to give and obtain for me the information sought, not only from the employers and managers, but also from the workpeople, with whom I had ample opportunity of conversing, and to whom I put many questions. My only regret was that I could not obtain permission to inspect the multi-colour machine which is in operation in New York, and by which five or six colours are printed at the same time.

The conditions of the trade do not vary to a great extent in the area covered during our visit. The wages paid throughout the States, with but a small number of exceptions, is not less than

$20 per week, but the majority of men employed receive a sum in wages considerably in excess of that named Several machinemen and transferers, of whom I had a knowledge in this country, are receiving from $20 to $36 per week. The recognised number of working hours in America is 53 per week. One establishment that I visited employs about 1,700 hands altogether, and the conditions in it may be accepted as fairly representing the trade in New York City, and to a large extent outside of it. It employs over 60 machinemen, 40 transferers, and 30 proofers; wages of transferers and proofers range from $25 to $35 per week; and for machinemen operating on machines, 36 by 52, the wages are $22, and for those employed on a 62 by 42, the wages are $25. This firm employs over 100 artists at various wages. A small number, engaged upon a common or inferior class of work, receive from $14 to $20 per week, but artists receiving such small money can only be considered as representing the most inefficient class employed in the department, as others receive from $20 to $80 per week according to ability. Piecework is to a great extent in operation amongst artists, and is reported as having proved fairly satisfactory to both parties, as, contrary to the custom in this country, the employers do not reduce the prices paid when they have calculated how long it takes a man to do the work. It may be here remarked that the position of the lithographic artists, looked at from a trade-union standpoint, is most unsatisfactory, owing, in my opinion, to the fact that they are not well organised as a trade; as a consequence, the wages paid vary to a large extent, not altogether justified by any difference that may exist in regard to the merits or the ability of the respective men.

Feeders on litho. machines are receiving from 12 to 16 dollars a week, the greater part of them being men who have a number of years' experience at their work, and who can feed the machine at any speed at which it may be found the work can be satisfactorily executed. It may be here remarked that at every establishment visited I found all the "taking off" done automatically, the employers stating that they find this method much better than employing human aid for that work.

Stone polishers and plate preparers receive from 14 to 17 dollars per week; they have a union of considerable strength, which assists them in maintaining their standard of wages.

Apprentices to the trade are taken in the same proportion to journeymen as in this country, but during the period of apprenticeship they receive wages very much higher than apprentices in the United Kingdom.

Tin and iron-plate printing is also in extensive use, and the system is the same as that in operation in this country. Some excellent work is executed, but in my opinion we have not much, if anything, to learn in respect to this branch of industry. But the readiness with which the employers take up new ideas and new machinery makes it all the more necessary that in this country we should lose no opportunity of keeping entirely up to date in all things connected with the trade. A very good machine is in operation for putting on the ground colour, which in this country is usually put on as the first printing. The machine will coat about 10,000 sheets per day, requiring only the attention of two youths or girls, one to feed it and the other to remove the sheets when coated. It is claimed for this process that the coating is superior to a printed white.

The use of aluminium for flat bed machines is rapidly increasing, as is also the use of rotary machines. This fact, accompanied as it is by the two-colour and the multi-colour machine, has brought about a great change, and, unless such machines are adopted by firms in Great Britain, must give to employers in the States a decided advantage in the production of certain, if not all, classes of work produced by the lithographic process.

The system of transferring in use differs so slightly from that in use in our own country that it might almost be passed without comment were it not for the fact of the entire absence

of transparent paper and the exclusive use of opaque paper, and of all register work being patched up to registered lines instead of on the glass or by the use of transparent paper. Work transferred by this paper furnishes results superior to that given by any other transfer paper to which we are accustomed. It is coated with a composition which, with the slightest suspicion of dampness, adheres to the stone with great tenacity. In fact, transfers to a large extent are put down on stones which have been damped in the ordinary way and fanned apparently dry, the small amount of moisture which remains in the pores of the stone being quite sufficient to ensure the transfer adhering to the stone. In transfers which I saw being made the methods in use appear to be extremely simple, and at the same time results were obtained which proved to be entirely satisfactory. The methods of rolling and cleaning up a job are also expeditious, and asphaltum plays an important part in the process of preparing the stone for etching, thus ensuring a condition of the job to be printed which will enable the operator to take almost any number of copies without deterioration to any serious extent.

My observations throughout the visit were such as to convince me that, with the high wages paid in the States in comparison to those paid in Great Britain, and assuming that our employers will provide machinery and other necessary means of production equal to those in use in America, this country need have no cause for alarm with respect to a transference of trade to the United States, so far as applies to lithography.

American employers calculate on a machine paying for itself in a short time. The best machines in the market are put in, and are worked at their highest capacity, and after they have paid for themselves, employers are ready when an improved article is produced to displace the old in favour of the new. A type of machine, previously referred to, is now in operation to print two colours at each traverse of the bed. This machine has been adopted with success by several firms. I visited the establishments of printing machinery makers, and there found evidence of the readiness and capacity to supply every demand of the trade.

In considering the general methods of management to be found in American houses and the means adopted to keep up with the existing rate of production, I would draw attention to the fact that reliable feeders are supplied—a necessity of the greatest importance in producing good work and preventing delay. In the next place, all possible work is removed from the man in charge of the machine. Labourers are at hand who remove the sheets from the front machine board and supply the feeder, and attend generally to the convenience of the minder, leaving him free to attend solely to the running of the job.

A lithographic roller-washing machine in use in the States attracted my attention, as providing a mechanical appliance by which much time and labour may be saved in the process of roller washing, involving as it often does the machine standing for a length of time whilst the rollers are being adequately washed and cleaned. The machine referred to is about 11 feet in length, with a width of 14 inches; it is placed close to the wall, and therefore does not occupy much space. It will thoroughly clean and grain the largest rollers in use in the trade in three or four minutes. A very great advantage possessed by the machine is that a roller which is very uneven or hollow can be brought to a true gauge from end to end. In fact, this was carried out in my presence with most satisfactory results. Appliances are in operation in connection with this machine by which the least possible waste of turpentine occurs; in fact, the waste that must occur is reduced to a minimum. In large establishments, where many litho. printing machines are in operation, it will be readily understood what a great saving of time and material can be effected by the use of the machine described.

I was privileged in being allowed to inspect and watch in operation a new machine which, in my opinion, is destined to exercise an important effect upon the printing trade, both letterpress and lithographic. The machine is known as the Planagraph, and the characters or letters used are neither set nor cast, as no type bodies are in any way used in the process. The composing machine prints the characters on transfer paper, which is then transferred to a smooth plate of either zinc or aluminium and afterwards printed on a rotary machine, without any delay whatever beyond the time necessary (which is very short) for fitting the plate into position on the machine. The justification of the lines is entirely automatic and carried out, without any assistance on the part of the operator, after the machine is set in motion. It is claimed that characters or letters can be put on the transfer paper at the rate of 35,000 to 40,000 ems per day. The cost of the machine is not great, but its effect upon the printing trade will be enormous, and without doubt will be the means of considerable work being executed on the rotary machine from aluminium or zinc plates which has hitherto been done from lead type on a letterpress machine. It will be the means of increasing the production of views, portraits, etc., by the aid of photographic transfers. In fact, the possibilities of this machine cannot be estimated at a short notice.

The prosperity of the United States is attributed to various causes. Those which, in my opinion, operate most strongly in effecting it, are, in the first place, the splendid natural resources of the country, rich in mineral and natural productiveness; in the second place, the superior education given to the American youth, which better fits him for the industrial contest into which he must enter; and, in the third place, the advantage of better machinery of the newest and most approved type. The number of labour-saving appliances in use for almost everything is perfectly astounding, employers recognising the fact that apart from time saved by the adoption of labour-saving appliances, the workman himself is better able to continue his part in connection with production and output, than otherwise he would be were he fatigued with performing duties from which labour-saving appliances or human assistance can save him. In respect to the speed at which machinery is run and the general activity of the men employed, there is positively no difference worth noting, for the men in both countries appear to be doing their duty in respect to each, that is, so far as lithography is concerned. The prosperity of America, in the opinion of some well able to judge, is to be attributed to the protective tariff in operation in that country. How far this assumption may be correct I am not prepared to say. A large number of the workers in this country have been brought up with the full belief in free trade and its principles, and amongst that number I am included; but whether free trade as practised in this country, which it must be admitted is very one-sided, is an advantage to those engaged in industry, whether manufacturers or workmen, is, to say the least, doubtful, in view of the fact that manufactured goods are allowed in Great Britain free of duty, whilst the manufactured goods of this country when sent to other countries are subject to a tariff, which practically prohibits their being accepted, and thus makes their continued manufacture impossible through its being unprofitable. No one with the welfare of the industrial classes at heart would for a moment advocate the taxing of food-stuff or raw material, but I am inclined to believe that could only a portion of the commercial prosperity of the United States be assured to this country as a result of taxing manufactured articles sent into it, a large number of workers would be glad to vote for the imposition of such taxes. It has generally been understood that in America the cost of living is exceedingly high, and the high wages enjoyed by the workers are swallowed up by the prices charged for the necessaries of life. Such is not the fact. On this occasion, as on previous occasions when I have visited the States, I paid particular

attention to the price of commodities by calling at different stores for the purpose of obtaining exact information. Whatever might have been the difference in previous years, the information obtained during my last two visits convinces me that to-day the prices charged for the same commodities in America are almost the same as those charged in Great Britain. In the States bread can be obtained at 2½c. per lb., or at the rate of 5d. for the four-pound loaf, legs of mutton 12c., or 6d. per lb., ribs of beef 12c. to 14c., or 6d. and 7d. per lb.; good bacon or ham 14c. to 16c., or 7d. or 8d. per lb. Prices were obtained for a large variety of articles, but the above may be taken as a fair sample of others which are not quoted. Vegetables can be obtained in plenty, and in great variety, at prices in accord and proportionate to those given above.

Clothing in the States is charged at very high rates, almost double those charged here for the same quality of goods. The price of boots is much the same as in this country, but if any difference exists it is that the Americans are a trifle higher. House rent and coals are dearer than in Great Britain, and the housing accommodation and the mode of living is not equal to that of the workers of this country.

Taking the condition of the lithographic printer of Great Britain and comparing it with that of the men employed in America, a very great difference will be found. In the States an ordinary lithographer gets, at least, £4 per week, and many men are paid at £5 and £6 per week for practically the same work that is done here for 36s. to 45s. per week. A substantial advantage will be found, when every charge is taken into consideration, in favour of our American brethren employed in lithography. The proof of this will be found in the fact that they dress better than our own workmen, have a higher standard of living, and spend more money, whilst many with whom I came into contact, have saved more money in a few years than our own members at home could possibly save in a lifetime. It is also beyond question that a large number of Americans own the houses in which they live. In justice, it should be stated that the habits of the men are sober. It is a rare occurrence to meet an intoxicated man, in fact the unsteady man is far less in evidence and far more uncommon in that country than here, for there he is looked upon with contempt, and, as a result of his habits, is ostracised.

In this report I have endeavoured as briefly as possible to convey impressions which have been made upon me during my repeated visits to America; and, in conclusion, I am pleased at being able to say that nothing which I saw there conveyed to my mind, apart from what I have already stated, that employers in America have an advantage over employers in this country. The better education of our people must not be overlooked, particularly that which is technical in character; this, coupled with a readiness on the part of employers to avail themselves of the new and improved machinery which is constantly being produced, will enable the trade of lithographic printing to be successfully carried on in this country without fear of its being transferred to the United States, either because it can be better executed or executed at a cheaper rate.

Answers to Questions, by Mr. GEO. D. KELLEY, J.P.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. We think so.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2. Not prepared to make any suggestions.

Questions.	*Answers.*
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	3. Every opportunity and encouragement should be given to attend such classes.
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Fifty-three hours a week; same practically as in Great Britain, where we work from 50 to 53.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. He does little, if any, more; but he has greater facilities than are generally provided in this country.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. No piecework in lithographic printing, but it is in operation among artists and draughtsmen.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. Of advantage to both where practised fairly.
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No; but it is frequently done in this country.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. No bonuses in our trade.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*) Yes. (*b*) Yes.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Yes.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Yes; when shown as opening up new channels of trade.
13. Are suggestions for improvements made by the workman welcomed and rewarded by the employers?	13. Yes.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workman, or does either side reap an unfair advantage from it?	14. (*a*) One man to each.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. No difference.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. Yes; the same as the English workman.

Questions.	*Answers.*
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. Yes; about the same.
18. Are the American employers more accessible to their men than English employers?	18. Yes; much more.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes; much greater.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. Yes.
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) Yes. (*b*) Not in my trade. (*c*) About the same.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. No difference in hours or speed.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. Not in my trade.
(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.	
24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Standard of living is higher. (*b*) Much the same.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) Yes. (*b*) In my opinion, quite 60 per cent more for bespoke clothing; not quite so much difference in ready-mades.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) No better housed. (*b*) Rents higher. (*c*) Yes; owing to higher wages.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. Double, at least.

Questions.	*Answers.*
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	28. Quite 60 per cent better.
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30 Yes.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. Not to any extent.
32. Is the American working man more sober?	32. Yes.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. No evidence of that in my trade.
34. Is it true that the American workman is thrown out of work at an early age?	34. No evidence of it.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. (*a*) I have no evidence of it in my trade.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. Smaller proportion.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. No evidence.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. Only in higher wages, as far as we are concerned.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. From what I have seen of it, yes.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. Yes; but we have something of the same kind.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. Personally, yes.

GEO. D. KELLEY.

Mosely Industrial Commission.

Report by Mr. W. COFFEY, of the London Consolidated Society of Journeymen Bookbinders.

Arriving at Boston on November 9th, my travelling companion, Mr. Geo. J. Lapping, of Leeds, the Secretary of the Amalgamated Leather Workers, and myself found instructions awaiting us to travel on to Niagara. but before leaving Boston we called upon Mr. Adams, the Editor of the *Boston Herald*, to whom I had a letter of introduction from W. R. Cremer, Esq., M.P., by whom we were very cordially received. We were then invited to attend the meeting of the Trades Council, and from there we went to the office of the *Globe*, where Major Kenny, of the reporting staff, kindly showed us through the whole of the department and explained the system of organisation adopted.

On Monday, Nov. 10th, we took the train for Niagara, where we arrived on the following morning. We found that we were in advance of the remainder of our party, and after a little rest we walked down to view the wondrous spectacle that has made this spot famous throughout the world. On Wednesday, the greater number of our party having arrived, visits were planned to points of interest in the neighbourhood. One of these was to the "Shredded Wheat" Factory. This is in every respect a remarkable establishment. It is a fine building situated a short distance from the rapids. The processes are carried out by some of the most intricately contrived machinery, so that from the delivery of the corn to the packing of the finished cake the need of immediate contact by hand is entirely avoided. The internal fittings are of the most elaborate and complete description in any factory in the world. The workpeople are provided with a separate locker for their clothes, there are hot and cold baths, luncheon rooms, and a fine concert room where the lunch time can be passed in pleasant recreation. In fact, the comfort and well-being of the employés is studied to a surprising extent. The rate of wages paid is also very satisfactory. The following day we journeyed to Buffalo, and were received by the Chamber of Commerce at the Board of Trade. We also visited the new plant of the United Steel Company now in course of construction at Lackawanna, which covers an immense area. On returning to Buffalo we were accompanied by several members of the Trades Council, who showed us over the most prominent buildings, the Post-office, the City Hall, and other notable points of interest. In the evening, after returning to Niagara, several of us attended a meeting of the Trades Council.

On Friday we visited the great power house, where machinery capable of exerting 55,000 horse power is worked by water power from the falls. A second house of even greater capacity is now being built. Lighting and heating power is supplied from this centre to the town of Niagara, and to the surrounding district for a radius of 30 miles. Another interesting visit was that made to the Carborundum Company's Works. Carborundum is a material which is formed into wheels similar to the emery wheels that we are familiar with. On Friday, November 14th, we left Niagara, and reached Cleveland early on Saturday morning. In the afternoon we were invited by the superintendent of the docks to take a trip along the river, where the swing bridges, the breakwater, and many other great undertakings were pointed out to us; and in the evening our party was entertained at the Union Club. Senator Hanna presided, and many of the most prominent men in the commercial world were present.

Sunday we spent in driving through Cleveland and its suburbs, special brakes being provided for our accommodation, and in the evening a reception took place at our hotel, Mr. Sontheimer, chairman of the Cigar-makers' Union, Mr. Goldsmith, and many other local men taking part in the arrangements. On Monday, November 17th, we visited Caxton Buildings, and went through the printing department with Messrs. Bowerman and Kelley. The bindery here was nearly all blank book (stationery) work. There was a good modern compact plant. The men were nearly all on time work, though some piecework is done when there is a pressure of letterpress work.

We arrived at Chicago on Tuesday, November 18th. After breakfast we visited the Armour Technical Institute. A large number of pupils were attending the classes of this finely equipped establishment. Later in the day we went to Armour's meat-packing works. The arrangements here for the comfort of the workers were far short of those at the shredded wheat works, though thorough cleanliness seemed to be observed in the packing and preparing departments. The following morning I called upon Mr. Tatum, the president of the International Brotherhood of Bookbinders. He was very busy, but laid his work aside and engaged in conversation for some time on the state of the trade, its rules and regulations and prospects. I afterwards visited the works of Messrs Donnelly, and also the establishment of Messrs. Henebery. We then went by invitation to the great department stores of Messrs. Marshall, Field and Co.,where upwards of 7,000 persons are employed. The manager received us most urbanely, and explained in detail the system of control adopted by him. He attached special importance to the recognition of merit even in the lowest grade of the employés, and laid particular stress upon the inducements held out by a system of rewards for suggestions as to improvements, which every employé was encouraged to make. Many of these suggestions had been of considerable advantage to the firm; the employés making them being recompensed by a small money grant, and in many cases by the more substantial reward of promotion. In the evening the whole party attended a banquet given by the Union Club of Chicago. Mr. Loudoun, chairman of the Chamber of Commerce, presided.

We next visited the great works of the Cash Register Company, at Dayton, Ohio. Here our attention was specially engaged by the great experiment in operation of meeting fairly the claims and aspirations of labour. The management appeared to be thoroughly imbued with the desire of cultivating the most friendly relations with the whole of the workpeople. Excluding all show of philanthropy, and aiming in every proposal at placing matters on a business basis, they have succeeded in making this factory the most progressive of its kind to be found in the States. The workshops are models of order and cleanliness, and the provisions for recreation out of work hours are of the most elaborate description. Here are spacious rooms for meals for the young women, some hundreds in number, employed in the office or the printing and binding departments. It was to us a revelation as to what can be accomplished by well-planned organisation and the goodwill of all concerned. As I stood in that spacious and perfectly lighted and ventilated hall, I could but contrast this sight of hundreds of happy and well-clothed and nurtured girls with the slip-slop, go-as-you-please conditions under which our work-girls ordinarily labour. If this were the only advantage of the system established here, it would merit all commendation. But there is much more. Music classes, bicycle clubs, historical and scientific lectures, and many other means of instruction and entertainment are maintained for the welfare of the workers. The management of these clubs, etc., is in the hands of the members, who elect their own officers, and contribute the necessary cost of maintenance. The whole concern is a fine example of co-operation on the part of the firm with its workpeople,

with the object of achieving satisfactory business results. We have the assurance of the managing director, Mr. J. H. Patterson, that from a business point of view it pays.

Leaving Dayton we took the train for Pittsburg, where we arrived on Friday morning. Here there was much to engage our attention, though the chief subjects talked of seemed to be coal and iron and steel. In all directions there were signs of the most intense activity, and all the factories appeared to be working to their full capacity. Here the local Trades Council arranged a pleasant function for the evening. Many speeches were made, and an exchange of views on a number of interesting points took place. Several of the local speakers referred to the causes of American success. They did not agree that men worked so much harder than in England. They laid stress upon the fact that men, even the poorest paid labourers, are encouraged by the employers to exercise mental activity. If a man has a notion for an improvement, he may make his experiments on the employer's premises and in the employer's time without deduction from his wages. If a man should be accidentally delayed in the morning through missing a car or losing a train, he is allowed to start work when he does arrive, and does not find a closed door and a day's wages lost. It was also declared that though there had been a deal of Sunday work in the past it was much less at present, the unions generally making every effort to suppress it, but often receiving very scanty support from ministers to whom they had at times appealed for help to rouse public opinion upon the question. On Saturday morning we visited the Homestead Steel Works. In the afternoon I accompanied Mr. Bowerman in making a call upon the secretary of the local Typographical Association. I did not find that there was a local association of bookbinders; there were a considerable number affiliated to the typographical, but their intention was to form a distinct branch as soon as circumstances tended to render such a departure both successful and desirable.

We left Pittsburg at eight o'clock on Sunday morning. This was our first occasion of travelling a long distance by daylight. The weather being fine we were able to obtain a good view of the varied and extensive country as we were swiftly carried along. Tracts of as yet unbroken land, covered by the wild growth of shrubs and vegetation, then a series of carefully kept farms, to be succeeded by a growing manufacturing town, this giving place to a long stretch of open country, with here and there a solitary habitation. Again we are carried past small towns, villages, and rivers, and are brought into the midst of the Alleghany mountains, round and down the famous horse-shoe curve, with the mountains rising some hundreds of feet above us, until, leaving them far behind, we arrive, long after darkness has set in, hiding our view, at the famous city of Philadelphia. The following morning I called upon Mr. Cogan, secretary of the local Bookbinders' Union. He informed me that conditions had greatly improved recently. He was very busy, as there was a réunion of the Trade Benevolent Fund that evening, and he was then making final arrangements for this gathering. I then visited a large printing firm with Mr. Kelley, where some recent improvements in lithographic machinery were in operation. In the afternoon I went over the establishment of Messrs. A. Reed and Co., whose extensive bindery was noticeable for the quantity of new machinery in every department. Here much attention is paid to the maintenance of good sanitary conditions. The floors are swept several times during the day, there is good lavatory accommodation, and special devices for carrying off the fumes from the boiling glue are in use; thus, the atmosphere of the workshops is kept as free as possible from injurious or disagreeable odours. Having received a pressing invitation from Mr. Cogan to attend the evening meeting, I went to the hall shortly before nine and found that a dinner was just about to be served. There was an attendance of about 300 members. After the dinner there was an entertainment. Before this commenced there were a few speeches. The secretary reported the state of the society's

funds, and showed that it had been making satisfactory progress, and that its affairs were in a sound financial position. I was called upon to say a few words, so I briefly thanked them for the honour of the invitation, congratulated them upon the successful working of their association, and wished them all success in future.

From Philadelphia we travelled on to Washington. Here during the day we visited the splendid library and were shown round by the deputy-librarian, who explained the method of the working of the reading-room and the system adopted for the convenience of readers. The ingenious mechanism for the transmission of books from the readers' desks to their proper shelves was much admired. We passed through the print-room and many other interesting departments, including the printing and binding shops. We were then conducted to the Capitol, and were shown the Hall of the Senate and the House of Representatives. We afterwards called at the Patent Office, where we were most kindly received by the Chief Commissioner. He invited us to his private room and gave a very interesting address on the laws relating to patents for inventions. In the evening several of us called to see Mr. John Mitchell, the Miners' President, who was in Washington in connection with the work of the Coal Commission. On Wednesday morning we visited the Government Printing Works and Bindery. Here a most extensive modern plant was in full work on the various State papers, reports of Government Commissions, the forms and documents required by the Post-office and other public departments. Although the building contains four floors with a surface space of 242,500 feet, it is found to be inadequate to meet the demands of the public. A new building designed on a much larger scale is nearing completion. It will be ready for occupation in about three months, when the work will be transferred. In this establishment, as I believe, in all others directly controlled by the Government, the eight hours working day is strictly observed. The binding department is well equipped with machinery. Both men and women spoke in terms of great satisfaction of the conditions of their employment. Men's wages range from $20 to $24 per week. The women's wages are from $12 to $15. Great attention is paid to cleanliness and ventilation. We left regretting our inability to prolong our stay. The chief officials, the public printers, the managers of the printing and binding departments were untiring in the attention paid us, giving their time most cheerfully to conduct us through and explain the working of this admirably conducted establishment. From the printing works we hastened to the White House, where an appointment had been made with the President to receive us at 12 o'clock. After a brief wait we were conducted to the President's study, where, after the ordinary introductions, the President addressed us very cordially, shook hands with each of us, welcomed us to Washington, and hoped our stay would be pleasant and profitable. From the White House we passed over to the office of the Labour Commission, where Mr. Carroll Wright, the Chief Commissioner, accorded us an interview, at once interesting and valuable, delivering a most able and exhaustive speech on the relations of Capital and Labour both in the United States and Great Britain. From here we called on the chief printer to thank him for the courtesy shown us during our visit to the printing works in the morning. We then hastened to pay our respects to Sir Michael Herbert, the British Ambassador, who received us most kindly.

We left the same afternoon for New York, where we arrived close upon midnight. The following day, Thursday, being Thanksgiving Day, there was a general cessation of business. Next day (Friday, November 28th), we visited the Navy yard; and on Saturday I accompanied Mr. Bowerman in a visit to the offices of *Colliers Weekly*. This large concern is known throughout the States as the publishers of one of the most widely circulated and popular periodicals. The printing department is furnished with a splendid plant of the most modern type, labour-saving appliances meeting the eye at every turn. A very noticeable feature was the

colour printing machinery. In the binding department there was similar evidence of thoughtfully designed arrangement. Here, on one spacious floor 150 feet in length and 50 feet in width the whole process of binding was carried out. At one end of this well-lighted and lofty room the folding, gathering, collating, and sewing, in fact the whole of the women's part of the work was done. Great attention is paid to cleanliness, no dust being allowed to collect about either the floors or the work benches. From the sewing machine the books are passed along to the pressers and cutters. The book-cutting is almost entirely done by "duplex" machines, the guillotine being now chiefly used for sheet cutting and odd numbers. The rounding and backing machines were in convenient touch with the cutting machines, so that the need for carrying work from one end of the shop to the other was entirely avoided. The lining, casing, case-making, and blocking or "stamping" as it is termed here, all being done on the same floor, and each machine being so conveniently placed as to enable one division to follow the other in orderly succession, must result in great economy being effected. This general arrangement with slight variations was followed in every establishment that I was able to visit. At Messrs. Collier's there are about 70 men employed in the binding department at rates of wages varying from $15 to $20. On extra work and finishing the rate was considerably higher. Amongst the firms that I called upon were Messrs. Trow, well known as the largest publishers of directories in the States. They are just completing a fine building, where they hope to be installed in a few months. Messrs. Trow also have large works at Brooklyn, which I was invited to visit, but time did not permit. Messrs. Little and Co., of Lafayette Place, were engaged in perfecting a machine for fixing books in their covers. This is a part of bookbinding to which machinery has as yet not been applied. The American Book Company, at Washington Square, possesses a magnificent building and plant. This firm is chiefly engaged in the production of school books, the output averaging 20,000 per day. A notable feature here is the application of electric power. Every machine has its separate motor, the blocking presses or "stamping" machines being entirely heated by electricity. The Methodist Book Concern, on Fifth Avenue, is also a very extensive establishment. Here a very large business is done in the production of Bibles, Hymn Books, the New Testament, as well as of portions of Scripture and religious works of many well-known authors. Another very finely arranged plant is that of Messrs. Williams, of Duane Street. The gentleman at the head of this firm left London about thirty years ago, and after working as journeyman for some years, started in a very modest way of business. Their plant is now valued at $70,000, and their business is one of the most substantial in New York. Messrs. Russell and Co., of Chambers Street, also have a flourishing business. In several of these establishments there is a stationery or account-book department, though this branch is mainly carried on by firms that cater specially for this line of work in a similar manner to that prevailing here. Time did not allow of my taking more than a passing glance at a number of other firms; it can be easily understood that to visit the whole of the establishments of our trade in this vast city would have necessitated a much longer stay than would have been either convenient or desirable. In every establishment visited the greatest courtesy was displayed by the employers, managers, and foremen. No hesitation or reluctance was shown in giving any information sought as to methods and conditions. Besides calling upon the firms above referred to, I sought out the officials of the union by whom I was equally well received.

With reference to the methods of working, I found that piecework largely prevailed, the prices being regulated by common agreement. Employment generally is fairly regular, the extreme variations of the rush season, alternated by weeks and even months of stagnation such as we experience in London, being quite unknown. Not that they are always equally busy, but the work appears to be more evenly spread over the year. I endeavoured to find some positive

evidence of the greater intensity of working which has been attributed to the American workman as one of the marked traits distinguishing him from his London *confrère*. I failed to find any grounds, so far as our trade is concerned, for the assertion that the men work so much harder. Everywhere men were working fairly, with little show of that feverish haste that one would expect to find after reading some statements that have been spread abroad. I am quite sure that the average rate of work in London is quite as rapid as that prevailing in New York. If the average output is greater, it is owing to the superior equipment of the shops with the best modern machinery and the special attention that is paid to the arrangement of the plant, whereby the carrying of loads is rendered unnecessary, and the passing from one process to another is greatly facilitated.

The welfare of an industry such as ours largely depends upon the prosperous state of the larger branches of trade. There is no doubt but that the great progress made in the iron and steel trades, the marvellous development of great cities that but a few years ago were little more than fairly thriving villages, has had the effect of creating a demand for literature both of an instructive and entertaining character. Scientific works also are in constant demand by the great educational centres, both for the ordinary school and high grade college.

Before closing I feel it to be my duty to express my deep sense of the cordiality shown me on all sides during this memorable visit. Everywhere I heard the most friendly wishes expressed for the perpetual endurance of friendly intercourse between the two countries. The intense eagerness for supremacy may not be so apparent with us, but I feel sure that we still possess all the attributes that go to achieve success. The patience, pertinacity, and dogged determination to maintain our place in the path of progress cannot have deserted us even though we may have shown some signs of falling behind. With a clear recognition of new conditions created by the advance of younger nations, a firmer grasp of the intricacies and of the complex problems, both social and economic, now demanding the earnest attention of peoples and statesmen, our nation will surely be enabled to preserve its prestige in the world's councils and to still keep its banner proudly aloft in the forefront of the march of progress. I would also sincerely desire to express my gratitude to Mr. Mosely for having afforded this splendid opportunity of visiting the great industrial centres of the United States. The anxiety shown by him for the well-being of the members of the Commission is of itself most worthy of special thanks, whilst the public spirit shown in organising the Commission, and in arousing the interest of both unions and employers to the need for increasing vigilance in safeguarding and preserving the common welfare, merits not merely thanks, but public recognition and honour.

Answers to Questions, by Mr. W. COFFEY.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1, 2, 3. The system of education appears to be well adapted to the needs of the people. The ambition of many a workman to see his son occupying a good position in life is encouraged and assisted by the facilities provided for the advancement of the studious youth, from the common school to the high-grade college, and still further to the university. There are some very excellent evening classes now being provided by the New York
2. If yes, what changes would you suggest in the English system of education for the working classes?	
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	

Questions.

Answers.

Education Board, but they have not been in existence long enough to enable a comparison to be made with our system of continuation schools. Much good work is done in the classes established at the Cooper Union. This is in all respects a model institution. Besides the numerous classes there is a splendid hall capable of seating 2,000 persons, where lectures, concerts, and other attractions are arranged for the entertainment of the students and the public. At the same time I consider that the facilities existing here for improved education by means of evening classes in the polytechnic institutes, and those under the direction of the Education Board, are greater than those at present established in New York. The difficulty here is to secure the attendance of those for whom such classes are designed. Employers can do much by encouraging their junior employés to avail themselves of the advantages of the teaching given in the various educational institutes, but there must also be that desire for improvement on the part of the youthful worker, without which all the efforts of boards of education will be rendered useless. As an instance, there is a large establishment in our trade here in London, where the manager notified the boys of the printing and binding department that, if they wished to attend the classes at either polytechnic or continuation school, the firm would allow them the necessary time, and would pay half the fees. The response was most discouraging. Not more than three out of a possible thirty showed any wish to avail themselves of the offer. This may be an exceptional case. There are, on the other hand, many who would attend classes if they could rely upon being able to do so regularly. They are, however, hampered by being kept at work until too late for the classes, consequently they become disheartened, and give it up.

(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.

4. What are the hours of work in your trade in America, and how do they compare with the hours in England?
5. Does the American workman do more or less in an hour, on average, than the English workman?

4, 5. The hours worked in our trade are generally slightly in excess of the usual practice here. There are, however, some important exceptions, where the eight hours day is established. There is a movement in the direction of making the eight hours day general. At present the 54 hours week is worked in most houses. Overtime is paid at the rate of time and a half. I did not observe any evidence of the high pressure that is said to prevail in American workshops. There seemed to be a general fair average rate of work, but certainly not greater, and I am sure in some cases not so great as is usual in many of our large shops at home.

Questions.

6. Is the system of piecework (piece rates or time piece-rates) largely used in America?

7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?

8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?

9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?

10. Where weekly wages are paid—
(*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay?
(*b*) On this system do personal energy and initiative meet with a due reward?

11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?

12. Are suggestions for improvements made by the employers, the introduction of labour-saving appliances and up-to-date machines, welcomed by the men, or the reverse?

Answers.

6. In all the chief centres, piecework is largely used. Machines, however, are mostly worked timework. In Philadelphia, cutters, stampers, or blockers, case-making machinists, and workers on the rounding and backing machine, average $18 per week. In New York the rate is $20. Pieceworkers earn from $3.50 to $5 per day.

7. I did not hear that this system gave undue advantage to the employer, though there were strong opinions expressed by many in favour of a more general adoption of timework. The grounds alleged were that piecework tended to the production of work of an inferior quality, and also that it led to the deterioration of the workman physically by reason of his being subject to constant strain, and morally by the incessant appeal to his selfish and predatory instincts, by which he is continually impelled to seek to circumvent his fellow-worker in the endeavour to obtain the better-priced work, leaving the slower man the hardest and most scantily-rewarded part of the labour. In most centres there is now a regularly established price list for nearly all kinds of work.

8. The employer, as a rule, does not attempt to cut these piecework prices, no matter what a man's earnings may be.

9. So far as my inquiries went I could not find that the system of bonuses and premiums existed in our trade. In timework there is, as with us, a well understood minimum below which a man cannot drop without risk of prompt dismissal, whilst, should he exceed this rate, his wages would be increased.

10. Where weekly wages are paid there is, as above indicated, a desire shown to give a fair day's work for a fair day's wages. A man showing more than ordinary ability would certainly receive due recognition.

11. With the knowledge that his efforts will receive recognition the workman is naturally spurred on and encouraged to put forth his best energies to increase output, whilst in most instances the employer sees that it is to his interest to advance the wages of the energetic worker.

12. I have previously referred to the system of rewards for improvements suggested by the employés, notably at such model establishments as the National Cash Registry, the Shredded Wheat Works, and Marshall, Field, and Co. Of course, suggestions of the kind

Questions.	*Answers.*
	come frequently from the side of the employer, and, as a rule, it is found that improvements such as labour-saving machines are accepted willingly and as a matter of course by the workmen.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Numerous instances were shown of men being promoted or rewarded for the interest shown by them in making or suggesting improvements. Great encouragement is given by employers to their workmen in this connection.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. Attending a number of machines is not usual or even possible in our trade, the machines in use necessitating the full attention of at least one man. In the folding departments one man usually is engaged in setting the gauges and keeping several machines in working order, whilst the actual operation of folding is supervised by a woman.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. The overseeing of the various departments is arranged much as it is with us, that is, one foreman or forewoman to each department, who are all subordinate to the general manager.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. With our work the need for frequent and detailed direction is not so great as in many industries, the various processes being to a large extent a repetition of those that are constantly occurring.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. My opportunities were insufficient to justify my expressing an opinion.
18. Are the American employers more accessible to their men than English employers?	18. The greater ease of access to employers or managers than commonly prevails with us is of much advantage to both sides, the employer taking care in cases coming directly before him to exercise judgment and tact; the man who may have perhaps a grievance, perhaps a confidential communication, to lay before his employer, feeling that he will have much more satisfactory attention than if compelled to put his case through a foreman or other subordinate employé.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. In the present condition of our industry, I feel certain there are many opportunities for intelligent and energetic men to rise more rapidly than at home.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In all the works that I visited I found much attention given to the questions of ventilation, sanitation, and general comfort. There are, as may be easily supposed, many

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houses where this attention is not so ample as would appear desirable, but the general tendency is to greater improvement in this direction, employers recognising that a healthy staff of workpeople must be better capable of producing the best results. This is, of course, recognised here, but the shops in the States were noticeable for the frequency with which they were swept and the precautions taken to prevent accumulation of dust and litter.

21. (*a*) Do you consider American factories better equipped for production than English?
(*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England?
(*c*) Do the factories turn out better work?

21. With regard to the equipment of factories there is a strong desire on the part of tke Americans to keep pace with modern requirements. He is much helped towards the realisation of this desire by the fact of buildings being put up to a much greater height than is usual with us. Works can be planned on a more comprehensive scale. More space being secured for the various operations, men are unhampered by the common difficulty experienced here of being, at times of pressure especially, unable to find room to properly place their work. Beyond this orderly arrangement I did not observe any indications of better management. The foremen, and in many cases the employers, are men who have risen from the grade of the ordinary journeyman. The quality of the work does not differ greatly from that produced here, especially in the publisher's cloth style. There are some houses that are now engaged in producing a finer class of work, but as yet they do not equal our extra shops, either in style or quality of workmanship. In this department considerable improvement is being made.

22. How far is greater output in American factories due to—
(*a*) Longer hours of work?
(*b*) Greater speed at which the machinery is run?

22. I think it very doubtful if the output per man is greater than with us. The hours worked are certainly longer, and it is possible that the method of arranging those hours may give some slight advantage. In the States the 54 hours are made up as follows :— Work is commenced at half-past seven in the morning and continued till half-past twelve. There is then a break for lunch of a half-hour. Resuming at one they work till half-past five for the first five days, and till half-past one on Saturday to complete the 54 hours. There are some houses where work does not commence till eight, and the men must then, of course, remain a half-hour later.

23. Are there any points in American practice which should, in your opinion, be imitated in English factories?

23. The ordinary practice being so similar, the machinery and methods being so much alike, it is difficult to say what points of American practice one could recommend for imitation here. The suggestion system might be adopted with advantage to both sides, as might also the lessening of the conventional barriers that prevent employers from taking any interest in the personal welfare of their

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Answers.

workpeople, and that also stand in the way of a man being able to approach his employer without incurring censure or dismissal.

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English?
(*b*) How does the price of food in America compare with that in England?

24. (*a*) On the question of the mode of living one should have actual experience to justify a definite reply. So far as I was able to observe, there is a general appearance of good health and physical vigour amongst both the men and women workers in our trade, leading to the inference that they are, on the whole, well cared for and properly nourished. (*b*) The price of food is not higher than with us. Meat has risen considerably within the last few years, but notwithstanding this result of the operations of the trusts, the prices range about the same as our market rates.

25. (*a*) Are the American workers better clothed than the English?
(*b*) How does the price of clothes in America compare with that in England?

25. Hats, clothing, and wearing apparel generally, are much dearer, being nearly twice as costly as with us, yet the American workman is usually well and even stylishly dressed

26. (*a*) Are the American workers better housed than the English?
(*b*) How does rent in America compare with rent in England?
(*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?

26. The housing question in New York is a problem of appalling magnitude. The chief dwelling accommodation is in the tenement houses. These are, in a large number of instances, built in such close proximity to each other that the space for the circulation of air is quite insufficient, and in the past, provision for adequate sanitation has been much neglected. The evils of overcrowding and uncleanliness have assumed quite dangerous proportions. Since the establishment of the Tenement House Commission, strenuous efforts are being made to lessen these evils, and the work accomplished by the commissioner and his inspectors constitutes a record of which they may well be proud; in fact, one may even venture to commend their speedy and drastic methods to the notice of some of our boards of health, and their recommendations as to the requirements of light, air, and space, for the working people, might even be commended to our county councillors, who, to judge by some of their recent achievements, might be regarded as being engaged in providing housing accommodation for a race of pigmies or Liliputians. In the other cities housing is not such a difficulty. In Philadelphia a substantial six-roomed house can be rented at from $12 to $15 per month. But though rent is generally high, it rarely exceeds the fourth of a man's income, and this will be found, so far at least as London is concerned, to be a moderate estimate of the proportion paid by thousands of the working classes. In the City of New York, there are few, if any, workmen owning their own houses. Land is too expensive for cottage or small house building. But in

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many cities the workman is enabled, by means of co-operative building societies, to become the owner of his house. There is a growing number of small owners, though it does not appear that the movement with this object has met with so much success as it has done in parts of England.

27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?

27. The average wage in our trade has been advanced considerably during the past seven or eight years. Prices have advanced. With this advance there has been a steady growth in the strength of the trade organisations, both amongst the men and the women workers. Hence the demand for an increased wage has been conceded by the employers, though in many cases only after a bitter and hardly-fought struggle. Wages rule at from 70 to 100 per cent higher than in England; in fact I saw men working machines at 20 dollars per week for which employers here would consider 36s. a sufficient and even ample wage.

28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?

28. Taking into consideration the cost of living, high rent, dear clothing, and other necessary charges, the workman in our trade is quite 25 per cent better off than his English colleague.

29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?

30. If yes, does he *in fact* save more, or not?

29, 30. A man who is careful, sober, and steady, can certainly save more than is possible here. Of this I had several instances adduced as proof. One case, that of a young man who had left London about fifteen months with a wife and two young children, told me that he had been unable to obtain work for the first three months. He was at the end of his resources when he secured employment as a journeyman. His employment had been fairly steady during the twelve months preceding my conversation with him. "I have cleared off some debts that I contracted, I have 100 dollars in the bank, and another 25 dollars to take there. *You* know I could not have done this had I stayed in London." With this I thoroughly agree, but whether men generally save more money than they do here, I am unable to say. Many seem to live fully up to their income, but if they are disposed to save they can certainly do so in a greater measure than they can in England.

31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?

31. I did not find that gambling on horses was carried on to anything like the same extent as with us. There does not seem to be the demand for a street "bookie" as we know him. I don't say that he doesn't exist; he certainly does not flourish as he does with us, nor does the infatuation that prompts the London errand boy, as well as the apprentice and the journeyman, to plank their hard-earned shillings on their "fancy" appear to have seized upon their American cousins to any noticeable degree.

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32. Is the American working man more sober?

33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?

34. Is it true that the American workman is thrown out of work at an early age?

35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman?
(*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?

36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?

37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?

38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?

Answers.

32. Drinking is not so rife either. That there is far too much drinking and too many saloons will at once be admitted, but the habitual boozer as we know him cannot exist. He loses all chance of employment, and must either give up drink or speedily go under.

33. Whilst it may be true that in some industries the strain of great physical exertion wears men out at a comparatively early age, I don't think that it is so in our trade to any larger extent than with us.

34. I saw many grey heads in the binding shops, men well on in years, quite capable of doing a good day's work, and able to keep level with many of the younger men round them.

35. I cannot undertake to answer this question, as I was unable to obtain anything like reliable statements respecting it.

36. Poverty undoubtedly exists. There was evidence of it in the number of ill-clad boys running the streets selling newspapers; but, on the other hand, there was no apparent sign that the number of indoor paupers was so great as is the case with us.

37. I could not obtain any reliable data upon the question whether men who are past work, or incapacitated by ill-health, are helped to a greater extent by their children or friends than is the case in England. I should, however, doubt whether this be so, as it is a marked trait of the people of our islands to help their aged parents to the best of their ability. Of course, there are exceptions.

38. As to this, I would say that where the truly English ideal is maintained it would be difficult to find anything better. The close ties binding family relationship in America are founded upon English practice and example. My stay was too brief to be able to learn whether those relationships are held in like esteem amongst Americans as with us. I am inclined to think that they are. I was glad to find that the large stores do not favour the "living in" system as it is carried out here, and in this one particular, at least, it would be well if American methods were copied here. As to the fact of the American manufacturer being able to pay higher wages and still successfully compete in the world's markets, it is doubtless true that in part this success is due to the attention paid to the details of perfect equipment as well as to the higher average speed of machinery. Of themselves, these factors would not be sufficient to ensure success, if the much more important and substantial factor did not exist in the

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Answers.

enormous natural resources surrounding them on all sides. At Pittsburg, for instance, the iron ore is found in immense quantities, cropping up on the surface, and is obtainable by the simplest outlay for labour, no mining being necessary. Again, splendid waterways are ready to the hand of the enterprising promoters of the industry for which they can be best utilised. These and many other advantages, provided by the bountiful hand of Nature, enable the American manufacturer to produce cheaply and in large quantities at lower rates than is possible in countries where heavy cost of mining, construction of roads and canals, add so materially to the charges upon output. The fact that these advantages have been so well utilised, and that they have been turned to such profitable account by the genius of the American scientists, must also be taken into account. However, these conditions do not greatly affect our trade as yet. I am not aware of any instance of successful competition in the book world, except so far as the American product is protected by the tariff laws. More spacious workshops and a more complete equipment of modern machinery must result in a sensibly increased output per man. The encouragement given by many employers by the immediate recognition of the man who shows himself possessed of special merit must also have similar results. In our trade at present the needs of the home market suffice to keep the centres of production actively engaged. There does not appear to be that intense degree of competition between employers that prevails here, consequently prices are kept up at a fairer level, and employers are not so much disposed to attempt to make their business pay by persistently cutting the wages of their workpeople.

(D) GENERAL QUESTIONS.

39. Do you approve of the working of the Civic Federation?
40. Could an organisation on the same or somewhat modified lines be introduced into England?
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?

39, 40, 41. In England we have for many years been familiar with the work accomplished by boards of arbitration and conciliation. It was with very favourable dispositions, therefore, that we gave attention to the work of the Civic Federation of America. This Federation has for its object the prevention of trade disputes by means of influencing the contending parties to confer in friendly discussion upon their points of difference. It might be thought that the fact of boards of conciliation and arbitration being already established here would render the formation of such a body as the Civic Federation superfluous, and therefore needless. Notwithstanding that much good work is done by the boards referred to, it seems, upon reflection, that there is room for such a body as the

Questions. *Answers.*

Civic Federation, and that its establishment would be likely to result in much benefit to trade and commercial interests generally. In the disputes that take place with us, certainly either or both parties can obtain the services of the board of conciliation and arbitration that may be established in its district or in connection with the industry affected. This in many cases is found to be sufficient. There are, however, occasions when the influence of public opinion might be exercised with much advantage in helping to a satisfactory solution of the questions at issue. In a general way, the public takes but a cursory and superficial interest in labour questions, regarding them as matters to be settled by experts. The Civic Federation aims at introducing this third element, or, at least, of inducing it to assist in bringing about the peaceful solution of labour problems. This would not be by taking sides but by friendly persuasion, inducing the contending parties to meet and discuss their difficulties in each other's presence and so arrive at a friendly settlement. This organisation would, therefore, embrace not only the experts, not alone the keen man of business intent on securing at all costs, the terms that he requires, not only the workmen's representative, anxious and even eager to stand out for the full concession of the demands of his organisation, but also the statesman, the churchman, the professional man; in fact, the representatives of the great class that is usually seriously affected by the disturbance of the ordinary course of business on the occurrence of trade troubles. For this reason alone I am completely and decidedly in favour of moving for the formation of a body on similar lines to the Civic Federation. The work of existing boards need not be interfered with. The very fact of arousing the interest of the great public, by securing the co-operation of the men of commanding social influence, would be of enormous advantage to the side that could clearly prove the justice of its claims.

W. Coffey.

Mosely Industrial Commission.

Report by Mr. W. C. STEADMAN, of the Parliamentary Committee of the Trades Union Congress.

Being elected by the Parliamentary Committee of the Trades Union Congress as their representative on the Mosely Industrial Commission to America, and not representing any special industry, my report will be general in its terms. I left home with an open mind and a keen interest in what I was to see in the great country I had heard so much about (it being my first visit), and during my tour of three weeks and three days I visited the following towns :—Niagara, Buffalo, Cleveland, Chicago, Dayton, Pittsburg, Philadelphia, Washington, New York, Brooklyn, and Blackwells Island.

The educational system of the United States is no doubt better than our own ; it gives the lad an opportunity to start at the public school and finish up at the University, with no fees or any kind to pay, the son of the workman being on an equality with that of the millionaire. Each State makes its own laws, and in most cases their educational laws forbid children going to work under the age of 14 years—a very good rule and one I should like to see adopted in this country. I regret to say, however, in some States, no effort is made to enforce them, hence they are evaded and violated with impunity, for practically all that is required for obtaining a certificate of employment is the affidavit of the parents, who have merely to swear that their child is 14, though he may be only 12, or even of fewer years. This is easily done since the law allows the affidavits to be taken by any chance notary, and in this way good laws are evaded, and the enormous expenditure and energies that the country has put into its school system thrown away, and thousands of children, like our own, are at work, when they should be at school. This system is not so bad in the North as the South. I did not find any public technical schools, such as, for instance, we have in London. There are a few private ones. At the one I paid a visit to, Armour's in Chicago, the pupils consisted of sons of the middle class, and there they turn out the industrial expert, who some day will be put to manage one or the other of their large industries, a good thing in its way, for it is far better to have the expert at the head of affairs, than the man with no knowledge put there because he happens to be a friend of one of the directors. But for technical education for the sons of the working classes I consider we are in advance of America, although our system might very well be improved upon. Every employer should be compelled by law to allow his apprentices to attend a technical school at least two afternoons per week.

Their apprenticeship system, if it ever did exist, is dying out, for I found on investigation there are very few and in most cases only taken for three years. According to Samuel Gompers, president of the American Federation of Labour, the sub-division of labour through the introduction of improved machinery had so killed the apprenticeship system that skilled workmen had to be imported from Europe, and particularly from England. In all the workshops and factories I visited, seeing so much had been said by a portion of the English press and others about the amount of work done by the American compared to the English, I paid particular attention to this side of the question, and in no case that I saw did I find them working any harder than we do at home. In Mr. Carnegie's Works at Homestead, if anywhere, I expected to see them stripped

to the waist, but nothing of the kind. While turning out a lot of work they took things very quietly. I saw a large block of steel turned out of the furnace and laid on the rollers, and in three minutes thirty seconds it was a steel plate 150 feet in length, 3 feet wide and ¾ inch thick. There are 16 furnaces in these works turning out (each) 800 tons of steel per week. The profits last year were $38,000,000, and Mr. Carnegie's share was 58 per cent. I was informed that the wages paid to unskilled labour were $1½ per day. The American workers do not work any harder than their English brethren, the tendency being to use improved machinery of the latest type, and should a new machine be put in to-day and a better one come out to-morrow that will turn out more work it will be put on one side for the latest and best, no matter what the cost. While we in this country use machinery to decrease wages, in America it means more wages and shorter hours, and workmen are encouraged by their employers to make any suggestion for improvement for which they are amply paid and in many cases promoted, whereas here they would be told to mind their own business. I did not find the piece system more prevalent there than here, some trades (as here) working by the piece and some by the hour; in the building trades they work by the hour. In Cleveland a bricklayer gets 50 to 60 cents per hour; plasterers about the same; carpenters 35 cents per hour. I asked the reason why the carpenter got less than the bricklayer, and was told it was because he was not so well organised. Builders' labourers got 25 cents per hour, the hours of labour in this trade being eight per day. In Chicago and New York wages are even more; in the latter bricklayers get $5.20 per day, and for sewerage work one dollar per hour. Where skilled workers are employed on the piecework system there is no attempt made by the employers to prevent a man earning more than a certain amount. On the contrary, the more the output the higher the wages. I did not come across any system of bonuses or premiums. Generally speaking, wages are from 25, 50, and 100 per cent more than they are here, the hours of labour being eight, nine, and ten per day; this includes Saturday, except in some trades in the summer, when they have Saturday half-holiday and lose the time.

The natural food supply factory that we visited in Niagara is described as the finest industrial building in the world. Judging from what we saw, I should say it was. Parts of it to me seemed more like a palace than a factory—splendid electro silver-plated baths and lavatories for the work-people, a beautiful dining-room and lecture hall, the lowest wage paid to females $5 per week, and no lad employed under 16 years of age. In some of the pottery factories they have a lounging room, semi-hospital and nurses to prevent lead poisoning; they are allowed two changes of clothes per day, and a bath in the employer's time. But perhaps the most interesting visit was that made to the National Cash Register Works, at Dayton, Ohio. There they have very fine baths, dining and recreation rooms. The females employed earn from $5 to $15 per week; they are allowed to leave work half an hour before the men in order that the may get trams to take them home before the rush comes, likewise Saturday half-holiday. Here again suggestions are asked for from among the employés, and in this way $1,200 are distributed yearly in prize money. In this factory I saw one man looking after eight machines; the work, however, was very simple, all he had to do was to feed them with brass bars, the machine doing the rest. Another place of interest visited was Marshall Field's Stores in Chicago. It is a fine pile of buildings 12 storeys high, with a floor space of 1,000,000 square feet. There are 7,000 employed. Here also suggestions are asked for from among the workpeople, $1 being given in each case. $200 were given last year in this way. One floor is entirely kept apart as a wardrobe for the ladies employed there. They have everything for their comfort, the mid-day meal being supplied at cost price. They are also allowed to commence business half-hour later than the men and close at 6 p.m.; no fines of any kind; wages paid much higher than in this country for that kind of work. I would commend Marshall Field's to some of our large establishments in London.

No doubt the best factories and workshops are far better than our own. Workmen are treated as men by their employers, who are always accessible to their men, and in most cases have far better opportunities for promotion than in this country, and are not subject to the same supervision. Thousands of Englishmen are employed, and in many cases hold positions of trust at good salaries. Taken as a whole, the Americans do not turn out better work than ourselves; in fact, to give my honest opinion, I do not consider it so good. As everywhere else, there are good and bad firms. You have the sweater's den in America even worse than here; in these, wages are low, hours of labour long, and conditions of employment very bad indeed. They also have their slums, the housing problem being very acute, although, from 1856 down to 1894, several commissions have been appointed by the State, and laws passed, as a result of their recommendations. The New York workers live mostly in tenements. There are 3,437,302 inhabitants in New York City, of these, 2,379,079, or more than two-thirds, live in tenement houses. As defined by the law, a typical New York tenement is known as the double decker, and although the housing problem is one of the leading questions of the day in this country, the conditions which exist here are ideal compared to those of New York. The tenement house extends six or seven storeys high, is about 25 feet wide, and is built upon a plot of land of the same width and about 100 feet deep. The building, as a rule, extends back 90 feet, leaving 10 feet unoccupied at the rear, so that the back rooms may obtain some light and air. A family living in such a building pays for four rooms of this kind, a rent from $12 to $18 per month; for three rooms in the rear, the rent is from $10 to $15 per month. Generally speaking, house rent is more in America than this country, excepting in some cases in East London.

Thousands of workmen own the houses they live in, but I am not in a position to say more so than here. The cost of living is no more, but the skilled workman lives better, having meat and fruit at every meal. Clothes and boots cost more than in England; gambling on horse racing is not the curse there that it is here among the workers, and they are mostly steady in their habits, so that taken on the whole a skilled worker in constant employment can do better there than here, and considering the outcry, some little time back, in the English press "too old at forty," he was no worse off in this direction than here. That America is going ahead there is no denying, and she will still further do so. The output of steel last year was 15,000,000 tons compared to our 7,000,000, and at the present time they are building (at Lackawanna) what when finished will be the largest steel works in the world.

But after all there is no comparison between the two countries, America has natural advantages we have not here. Take her lakes, for instance, more like inland seas and rivers, then compare them with our Thames, Tyne, and Clyde. One can only have admiration for the old country that has been able (and still capable) to do so much out of so little. In New York harbour they have 40 feet of water at low tide, so that the largest ship afloat can always get to her berth without having to wait for the tide. It brings in a revenue of $3,000,000 a year, one pier alone being let at a rental of $3,500,000 per annum.

The English worker has nothing to learn from America, but the employers have a lot. I do not assume for one moment we are the best, but this I do say, we cannot be beaten in the world for good, solid, well-finished work that will stand the test of years to come. Let our employers realise that labour is as much a partner in the business as his capital, and that the success or failure of that business depends upon both; he has the best material to work upon. Treated properly he need have no fear of American competition, or that of any other country in the world, for high wages pay both the employer and the employed. In America they know this, and act up to it; hence the secret of their success. The trade unions in this country have been

accused of driving the trade out of the country, yet the same forces at work here are working there, only more so, for trade-unionism in that country is increasing by leaps and bounds as a purely industrial and fighting force, and yet America is going ahead.

I regret that pressing business at home prevented me from attending the annual meeting of the Civic Federation. It has a committee composed of 12 employers, 12 representatives of labour, and 12 leading citizens occupying high social positions, the object being to do what they think best to promote industrial peace, to obviate and prevent strikes—truly a worthy object. I had not the opportunity of ascertaining what the average trade-unionist thought of it. I should consider the promoters are wise in their generation, for I am certain that unless something is done to conciliate labour, the trust system will bring about such an uprising as America has not witnessed for the past 40 years. In President Roosevelt the trade unions have a friend, and for my part I should welcome in this country any movement of a non-compulsory character that would settle labour disputes without a strike.

We were treated with the greatest kindness by everybody from the President downwards.

In this report I have endeavoured to give a fair and honest opinion of my impressions gained by my visit to America, which on the whole was good educational work.

Answers to Questions, by Mr. W. C. STEADMAN.

Questions.	*Answers.*
(A) EARLY TRAINING OF THE WORKER.	
1. Is the American lad better equipped by early training and education for his work than the English lad?	1. Elementary, yes; technical, no.
2. If yes, what changes would you suggest in the English system of education for the working classes?	2, 3. That adequate provision be made for the efficient education of all children under the age of 15 years; that no maximum age limit be fixed, and no fee be charged in any elementary, evening continuation, higher grade, or technical schools; and the free scholarships be available to those parents who are anxious to continue the education of their children.
3. Have you any suggestions to make with regard to Evening Continuation Classes, and Technical Education in Evening Classes for men at work during the day?	
(B) RELATIONS BETWEEN EMPLOYERS AND EMPLOYED.	
4. What are the hours of work in your trade in America, and how do they compare with the hours in England?	4. Hours of labour in some cases longer, in none shorter.
5. Does the American workman do more or less in an hour, on average, than the English workman?	5. No.
6. Is the system of piecework (piece rates or time piece-rates) largely used in America?	6. About the same.
7. Is this system found of benefit (*a*) to the men, (*b*) to the employers? Does it give an unfair advantage to either side?	7. No benefit to either side.

Questions.	*Answers.*
8. When skilled workers on piecework increase the output per man by their own efficiency, do American employers cut down wages so as to prevent a man earning more than a certain amount?	8. No.
9. Are systems of premiums and bonuses commoner in America than in England, and if so, how do they result for employer and employed?	9. No, not at present.
10. Where weekly wages are paid— (*a*) Do the men show an anxiety to do their best and to give a fair day's work for a fair day's pay? (*b*) On this system do personal energy and initiative meet with a due reward?	10. (*a*), (*b*). No more than they do in England.
11. Are American employers anxious to induce the workers on timework to increase the output per man and to increase the wages per man in the same proportion?	11. Yes.
12. Are suggestions for improvements made by the employers, the introduction of labour saving appliances and up-to-date machines, welcomed by the men, or the reverse?	12. Yes.
13. Are suggestions for improvements made by the workmen welcomed and rewarded by the employers?	13. Yes.
14. (*a*) Do the workmen attend on a larger number of machines than in England? (*b*) If yes, does the system benefit both employer and workmen, or does either side reap an unfair advantage from it?	14. No knowledge.
15. Does the American workman require much "overlooking"? How does he compare in this respect with the English workman?	15. No more than in England.
16. Is the American workman capable of exercising initiative and of working without frequent and detailed directions? How does he compare with the English workman in this respect?	16. Yes, because he has more freedom.
17. Does the American workman exert himself at times of special pressure, and at such times do overwork cheerfully? How does his overtime output compare with the output of the normal day? and how does he in these respects compare with the English workman?	17. No knowledge.
18. Are the American employers more accessible to their men than English employers?	18. Yes.
19. Speaking generally, are there greater opportunities for the working man to rise in America than in England?	19. Yes.
20. Are the needs of the workers in the matter of sanitation, ventilation, and general comfort in the factory, better met in America than in England?	20. In some cases, yes; in others, no. They have no Factory Acts in America.

Questions.	*Answers.*
21. (*a*) Do you consider American factories better equipped for production than English? (*b*) Are they better managed? and are a greater proportion of University trained men employed in management than is the case in England? (*c*) Do the factories turn out better work?	21. (*a*) In some, yes; in others, no. (*b*) Yes. (*c*) No.
22. How far is greater output in American factories due to— (*a*) Longer hours of work? (*b*) Greater speed at which the machinery is run?	22. To machinery.
23. Are there any points in American practice which should, in your opinion, be imitated in English factories?	23. In the one or two I saw, yes.

(c) GENERAL CONDITION OF WORKERS OUTSIDE THE FACTORY.

24. (*a*) Are the American workers better fed than the English? (*b*) How does the price of food in America compare with that in England?	24. (*a*) Generally speaking, yes. (*b*) About the same.
25. (*a*) Are the American workers better clothed than the English? (*b*) How does the price of clothes in America compare with that in England?	25. (*a*) About the same. (*b*) Dearer.
26. (*a*) Are the American workers better housed than the English? (*b*) How does rent in America compare with rent in England? (*c*) Do more workers, relatively, own the houses they live in, than is the case in England? If yes, to what circumstances do you attribute this?	26. (*a*) No. (*b*) Generally speaking, dearer. (*c*) No knowledge.
27. How does the average wage in your trade in America, *expressed in money*, compare with the average wage in England?	27. Fifty per cent better off.
28. How does the *value* of the American wage compare with that of the English, *cost of living being taken into account*?	
29. Can the careful, sober, steady man, whilst keeping himself efficient, save more in America than in England?	29. Yes.
30. If yes, does he *in fact* save more, or not?	30. No knowledge.
31. Does gambling on horse racing, &c., enter as largely into the life of the American as of the English working man?	31. No.
32. Is the American working man more sober?	32. From what I saw, yes.
33. Is it true that the American working man does a larger amount of work in early manhood than the English, but that he deteriorates young, and that his working years are shortened?	33. No more than in England.

Questions.	*Answers.*
34. Is it true that the American workman is thrown out of work at an early age?	34. I don't know.
35. (*a*) Is it true that the average life of the American workman is shorter than that of the English workman? (*b*) If yes, is this due to overstrain, less healthy climate, or some other cause?	35. I don't know.
36. Are a larger or smaller proportion of American working men dependent upon the public purse than is the case in England?	36. Smaller.
37. Do the children and friends of American working men, who are either past work or incapacitated by ill health or accident, help them to a greater extent than is the case in England? If yes, to what do you attribute the difference?	37. No information.
38. Do you consider the general conditions of life of the workman better in America than in England? In what respects might American example be copied so as to improve the conditions of life in England?	38. A matter of opinion.
(D) GENERAL QUESTIONS.	
39. Do you approve of the working of the Civic Federation?	39. Yes, from what I know about it.
40. Could an organisation on the same or somewhat modified lines be introduced into England?	40. I see no reason why not.
41. Are the delegates in favour of taking steps to establish an organisation of this kind in England?	41. Delegates must decide this themselves.

W. C. STEADMAN.

Mosely Industrial Commission.

APPENDIX

ON

PROGRESS IN MANUFACTURE IN THE UNITED STATES AT THE END OF THE NINETEENTH CENTURY.

[N.B.—The figures given in the following paper are in every case derived (except where the contrary is stated) from the published official figures of the Governments concerned. The United States' published figures for Imports and Exports (though not those for production) relate to fiscal years, *i.e.*, to years ended June 30th, but they have been brought into comparison with British figures and others relating to calendar years by comparing a period of three fiscal years (*e.g.*, the three years ended June 30th, 1901) with two calendar years (*e.g.*, 1899 and 1900). The latest year dealt with is in general the calendar year 1900, or, in the case of the foreign trade of the United States, the fiscal year ended June 30th, 1901. Although the figures can sometimes be given for later periods, it has been thought better, with a view to comparability, to confine the main discussions to a period for which the principal results can be stated with some degree of completeness.]

"We cannot now produce coal, even with the aid of the best engineering skill and of abundant trained labour, "nearly so cheap as it can be had on the banks of the Ohio. . . . .

"Beyond the reach of doubt, there is no portion of the earth's surface so naturally fitted for becoming the seat "of great industries. . . . .

"But why, it may be asked, does not such wonderful wealth in coal affect our prosperity, if so much depends "upon the price of coal? It is because America is not, and cannot for a long period yet, reach that stage of indus- "trial development in which a great system of manufactures naturally grows up. Great as is the wealth of coal, "the wealth of land is comparatively to European countries greater still, and agriculture has and should have the "natural preference over manufactures. . . . . The progress of American coal industry is only retarded "by the comparatively greater wealth in other respects."—JEVONS. "The Coal Question," 1865.

INCREASING EXPORTS OF MANUFACTURES.

The approaching great industrial development of the United States, foreseen by Jevons in 1865, did not wait for the close of the century in which he wrote before the signs of it were abundantly manifest; but, whilst he was able to predict its advent, we may well believe that he would have been astonished at the progress that has been made by that country in recent years. Towards the end of the nineteenth century a surprising change came over the character of its exports. Previously, the United States had been regarded as a country whose position in international trade was mainly that of an exporter of agricultural produce, but of late years its manufactures have increasingly asserted themselves in the world's markets. Something of the nature of this change may be seen from the following statement, which shows for the financial year ended June 30th, 1875, and for averages of three years at five-year intervals ending with the period 1899–1901, the proportion of the total exports that consisted of agricultural products and

of manufactures respectively. A glance at this statement will show that the most remarkable changes in the relative proportions have taken place during the last two, and especially during the last period of five years.

United States.—Exports.

Financial Years (ended June 30th).	Proportion of Total Exports of Domestic Merchandise, consisting of—		
	Agricultural Products.	Manufactures.	Others.
	Per cent.	Per cent.	Per cent.
1875	77	16½	6½
1879–1881	81½	14	4½
1884–1886	73	20	7
1889–1891	73½	19	7½
1894–1896	69½	23½	7
1899–1901	63⅓	29⅓	7

This statement sufficiently shows that it is during the last ten years of the century that the main changes in the character of the exports from the United States took place. It will be seen in fact, that whilst some ten years ago the proportion of manufactures in the exports was remaining nearly stationary, during those ten years the proportion has risen from 19 to 29½ per cent of the total, whilst the proportion of agricultural products has fallen off by a corresponding amount. It must be remembered that there has been no falling off in the *quantities* of agricultural products exported. These (which consist, of course, principally of wheat and cotton) were never greater in any three consecutive years than in the period 1899-1901, but the increase in the value of manufactured articles has been during the last ten years far more rapid. The total value of the exports of these latter has, in fact, increased from £31,900,000 per year in the period 1899-1891, to £41,400,000 five years later, and to £82,300,000 in 1899-1901. In the last five years, therefore, it has practically doubled. It may be said that the amounts as a whole are only small as compared with the exports of manufactured articles by the United Kingdom, where nearly the whole of the exports consist of such articles. It may also be urged that certain articles, such as mineral oil and leather, are only manufactured to a slight degree, and owe the main part of their value to the value of the raw materials contained in them, in the production of which the United States has inevitably natural advantages, and in no sense competes with this country. A closer analysis of the figures, therefore, becomes necessary in order to see in what direction the main part of the progress made by the United States, as a nation exporting manufactured products, has been made. This is done in the following statement, which shows, converted into millions sterling, the value of the principal classes of manufactured articles exported at intervals of five years, averages of three financial years being taken in each case. This statement will serve to show that if the last ten years of the century were years of great expansion, it was in the last half of that period that the greatest progress was made.

United States.—Exports of Manufactured Articles.

Groups of Articles.	Average of 1889–1891.	Average of 1894–1896.	Average of 1899–1901.
	Million £'s.	Million £'s.	Million £'s.
Agricultural Implements	0·7	1·1	3·1
Machinery...	2·9	3·5	10·4
Carriages and Cars	0·9	0·7	2·1
Other Iron and Steel Manufactures ...	2·3	3·4	12·7
Copper, and Manufactures thereof (excluding Ore)	0·6	3·7	9·5
Mineral Oil, refined...	9·4	9·4	12·8
Leather, and Manufactures thereof ...	2·5	3·5	5·5
Cotton Manufactures	2·3	3·1	4·7
Other Manufactured Articles	10·3	13·0	21·5
Total (Million £'s)... ...	31·9	41·4	82·3

It will be seen that in the case of every one of these groups the absolute growth in the value of the exports, and in most cases the proportionate growth also, was greater as between the second and third, than between the first and second period. In each of the first four groups the value of the exports at the end of the century was, roughly speaking, treble their value five years before.

The case of copper may be dismissed in a few words. The United States now produce more copper than all the rest of the world put together, the large increase in the output in recent years being no doubt attributable in part to the demand for copper in electrical construction. This is a branch of the metal trades in which we can hardly hope to compete with them. Our own production of copper is now almost entirely derived from imported ores, pyrites, regulus, and precipitate, and is less than a quarter of that of the United States. British copper mining is a dead industry.

Although not showing any increase which over the whole period at all approaches that in the exports of copper, it is the exports under the first four heads that more directly concern us. As already pointed out, the values which increased but slightly during the first and second periods, shown above, have suddenly trebled in the last five years, whilst the imports of iron and steel manufactures have declined. This rapid increase in export, far more rapid as far as we know than any increase in production, appears to indicate that so far as the home market is concerned the point of saturation has been about reached, and that at least a large proportion of any further increase in production will go to swell exports. We appear, then, to be brought face to face with a new rival in foreign markets in the iron and steel trades. How serious that rivalry may become may perhaps best be gauged by comparing the export figures given above

with those derived from our own trade accounts. In order to make the figures as nearly comparable as possible, an average has been taken of the two calendar years which occupy the middle of the three financial years for which the United States figures have already been given.

United Kingdom.—Exports.

Groups of Articles.	Average of 1889–1890.	Average of 1894–1895.	Average of 1899–1900.
	Million £'s.	Million £'s.	Million £'s.
Carriages	2·5	2·3	2·7
Hardware and Cutlery	2·9	1·8	2·1
Implements and Tools	1·3	1·2	1·5
Machinery and Millwork	15·8	14·7	19·6
Other Iron and Steel Manufactures ...	30·4	19·2	30·0
Total (Million £'s)... ...	52·9	39·2	55·9

Comparison between detailed headings in the trade accounts of the two countries is probably somewhat unsafe, but some idea of the prospect of the United States becoming a greater exporter of iron and steel than this country may be gathered by noticing that the value of machinery exported, as well as that of the total exports of iron and steel manufactures, which were both five years ago less than a quarter of the corresponding values in this country, amounted at the end of the century to more than half those values.

POPULATION OF THE UNITED STATES AND THE UNITED KINGDOM.

In comparing the statistics of the production and export of two countries, some account must of course be taken of their relative populations. The population of the states and organised territories of the United States (excluding, that is, the Indian territory and reservations, as well as Alaska and Hawaii) in the year 1890 was 62,622,250. In 1900 it had grown to 75,693,734. This represents an increase in the decade of nearly 21 per cent. The population of the United Kingdom during the intercensal period, 1891-1901, increased from 37,732,922 to 41,454,621, or by about 10 per cent. The population of the United States is, therefore, increasing more than twice as fast as that of the United Kingdom. Another point to which reference may be made is that, largely no doubt owing to the continuous stream of immigration, which consists to a great extent of adult males, the population includes more males than females, whilst in this country the opposite condition prevails.

In any comparison, however, of the exports of two countries, it must always be remembered that the exports per head of a large country tend (other things being equal) to be less than those of a small one. In a union of two contiguous countries, the trade across their common frontier ceases to be reckoned as foreign trade, and there is therefore an immediate reduction in the aggregate value of the exports of the two countries. The exports per head of the Australian Commonwealth, for instance, are less than the average exports per head of the States of which it is composed.

GENERAL GROWTH OF MANUFACTURES IN THE UNITED STATES.

CENSUS FIGURES.

Some general idea of the progress of the manufacturing industries during the last decade is afforded by the United States census, although the results must for various reasons be taken with considerable caution. In this census, returns are asked for from employers with regard to capital, number of employés, wages, cost of material, value of products, etc., all relating to the year previous to that in which the census was taken. The results of the 1900 census are not yet available as regards many individual groups of trades, but the following preliminary figures relating to manufactures as a whole, taken from the final report of the United States Government Industrial Commission, are of interest:—

	Percentage increase of 1899 over 1889.
Number of Establishments	44·2
Capital	51·0
Wage-earners, average number	24·9
Total Wages	22·9
Miscellaneous Expenses	62·9
Cost of Materials	42·4
Value of Products	38·9
Value due to Manufacture	34·7

Similar figures could be given for the comparison between 1889 and 1879, and previous decades. Any such comparison is, however, inevitably affected by the increasing accuracy, as well as by changes of method in the successive inquiries, and the figures for previous decades are admittedly far less reliable than those given above. The figures given at best only relate to the working of single years, but they are worth quoting if only for the interesting illustration they afford of the well-known fact of the increasing use in the United States of labour-saving appliances. It will be observed that whilst the capital employed is reported to have increased by 51 per cent, and the miscellaneous expenses, other than wages, by 63 per cent, the total wages bill has only increased by 23 per cent, and the number employed by 25 per cent. These latter increases are also noticeably less than the increase in the value due to manufacture, *i.e.*, the value of the products after deducting the cost of materials. The figures also, as far as they go, confirm the statement already made that the proportionate expansion in manufacture, as a whole, has not approached that in exports.

We may now turn to a consideration of the available statistics with regard to particular groups of manufactures, and especially with regard to the iron and steel trades.

COAL PRODUCTION AND CONSUMPTION.

One of the prime requisites for the development of the iron and steel trades, as indeed for most other forms of manufacture, consists of a plentiful supply of cheap coal, which can only be afforded by coal of domestic production. No estimate can be given of the amount of coal used in manufacture in any country, but when it is remembered that even in the first stage of iron and steel manufacture—the production of pig-iron—the weight of coal required is nearly as great as that of the iron ore used, and about twice as great as that of the pig-iron produced, some idea may be obtained of the enormous importance to a manufacturing country of an easily available coal supply. The production of coal in the United States, which has of late years been rapidly increasing, already exceeds that of the United Kingdom, whilst the consumption is even more in excess, the proportion of coal exported being much greater in our case than in theirs. The imports of coal into both countries are only trifling.

How far the available coal measures of the United States exceed those of this country can at best be a matter of very rough estimate. Jevons, writing in 1865, gave the ratio of 37 to 1 as probable. The relative ease of working in the two countries is largely a question of period of development. The shallow workings of a country like our own have long ago been exhausted, but it is the shallow workings of the United States, and the resultant facilities offered to coal-mining, and as a consequence to manufacture, that constitute the heaviest handicap against us in the race for pre-eminence in the iron and steel trades.

The following statement illustrates the relative growth in the output of coal in the United States and in the United Kingdom in recent years :—

Output of Coal.

	United States.	United Kingdom.
	Tons.	Tons.
Average, 1884–1885	102,983,000	160,055,000
,, 1889–1890	133,482,000	179,266,000
,, 1894–1895	162,437,000	188,970,000
,, 1899–1900	233,760,000	222,638,000

It will be seen that in both countries the last quinquennium was that of the greatest increase in output, but each increase over the preceding period was greater in the United States than here, the final leap from an output of 26½ million tons less than our own to one of 11 million tons greater being especially remarkable. The figures for 1901 which are now available are still more favourable to the United States, the production having increased to 267,850,000 tons, whilst the production of the United Kingdom fell off slightly and only reached 219,037,000 tons. The views of the mine owner and the manufacturer are naturally somewhat different as to the value of cheap coal. It should, however, be noticed that whilst in this country the average value at the pit's mouth of the coal raised, which was 6s. 8d. per ton in 1894, and 6s. 0½d. per ton in 1895, rose to 7s. 7d. in 1899, and 10s. 9¾d. in 1900 ; in the United States, in spite of a much greater proportional increase in output, the average value rose by only about one penny per ton (4s. 11d.—5s.) between 1894–5 and 1899–1900. It would be a mistake to argue directly from these figures as to the comparative cheapness of coal in the two countries. In order to do that we should have to know the relative prices of coal of the same grade, for there is coal and coal, but as an indication of the relative rise in prices the figures are very suggestive. The more extreme prices that prevailed during a portion of the two years in this country were, of course, of the nature of monopoly prices. The world's great demand for steam coal, such as only this country could supply, raised prices enormously, and so far was the coal from being worked at only a margin of profit that during a short period very large profits were undoubtedly made by mine owners. It would, therefore, be wrong to contend that the whole difference in prices here between 1894–5 and 1899–1900 represented additional cost of working due to increased output. Now, however, that the extreme period of inflated prices is over it is evident that the increased output of the last few years has involved a rise of price, which is noticeably greater than that which in the United States corresponded to a much larger increase in output. The figures with regard to prices, therefore, even without any direct comparison of the prices of the two countries, do serve in some degree to illustrate the relative difficulties of working.

The following statement shows the production of coal per head of population in the United States and United Kingdom for the same periods as those given above :—

	United States.	United Kingdom.
	Tons.	Tons.
Average of 1884–1885	1·86	4·46
,, 1889–1890	2·16	4·80
,, 1894–1895	2·38	4·85
,, 1899–1900	3·11	5·47

Between the second and third of these periods the growth of the output per head was greater on this side of the Atlantic, but in the next five years whilst our output was nearly stationary theirs was increasing. The final period showed a large increase in both countries, though slightly greater in the United States than here. The output per head is still considerably below ours, although, seeing that the production in 1901 corresponded to an output of 3·45 tons per head, whilst in this country we dropped back to 5·28 tons per head, it appears that at present rates of progress even this superiority will not long be ours.

Whether owing to the nature of the coal itself or to accessibility of the workings, nearness to the surface, and so on, the methods of mining in the United States are very different from those prevailing in the United Kingdom, the principal difference being in the relative prevalence of machine mining tools as compared with the ordinary pick. For various reasons, but especially owing to ease of working and the use of machinery, the output per man employed is far higher in the United States than in this country, the average being about 550 tons per man per year, as against about 300 in the United Kingdom. The progress of machine mining in the United States has been rapid, especially during the last few years, until now more than a quarter of the total product is raised in this way. This appears from the following statement, which shows for 1891 and for the last five years of the century the proportion of the total output mined by machines the average quantities of coal raised per man employed being also given :—

UNITED STATES.—COAL OUTPUT.

Year.	Percentage of total output mined by machines.	Average output per man employed.
	Per cent.	Tons.
1891	6·66	453
1896	14·17	443
1897	16·19	450
1898	20·39	490
1899	23·00	552
1900	25·15	548

In the United Kingdom only 3,321,000 tons, or 1½ per cent of the total output, were mined by machinery in 1900. What effect machine mining has on the coal is a question for the mining expert, but it is only fair to state that at the time, towards the end of 1901, when an attempt was being made to introduce American coal into Europe, the prevalence of machine mining was given as one of the reasons of the observed fact that the American coal was more broken than that from England.*

Although, during the recent period of high-priced British coal, energetic attempts were made to secure a market for American coal in Europe, it appears clear that, save in exceptional circumstances, we have little to fear in this direction. As regards Northern Europe, the difference in freights as between this country and the United States is very large, and even in Southern France and on the Mediterranean it remains considerable.†

As a matter of fact, although the increase in coal exports from the United States has been very rapid, the total quantity amounting (including coke) to an average of nearly 7,000,000 tons in the three years ended June 30th, 1901, as against 3,750,000 in five years, and about 2,000,000 ten years ago, the major part of the export is taken by Canada, whilst Mexico and Cuba account for nearly all the remainder. In other words, the United States comes hardly at all into competition with us in the business of exporting coal.

The importance of the figures relating to American coal lies in its availability for her own manufactures, and statistics of the consumption of coal are a useful index of the vigour with which those manufactures are growing. In the United Kingdom the coal consumption has increased from an average of 146,000,000 tons in 1894-5 to 166,000,000 tons in 1899-1900, *i.e.*, from 3¾ to 4 tons per head of population. In the United States the consumption in 1899-1900 was about 231,000,000 tons. Although this represents a consumption per head of only a little over three tons, the consumption five years before was only about 160,000,000 tons, or less than 2½ tons per head, so that the consumption per head is growing considerably faster than in this country.

IRON ORE IN THE UNITED STATES AND UNITED KINGDOM.

Unlike the United Kingdom, the United States is nearly independent of foreign sources of iron ore. The quantity imported (derived principally from Cuba) has not, since 1892, exceeded 1,000,000 tons. The quantity mined in the United States, which was over 16,000,000 tons in 1892, fell below 12,000,000 tons in the two following years, but has since risen steadily to 19,500,000 tons in 1898, 24,500,000 tons in 1899, and 27,500 000 tons in 1900; the figures for these last two years have never previously been reached by any country in the world. About three-quarters of the 1900 output was derived from the Lake Superior region, which embraces iron ore mines in the three States of Minnesota, Michigan, and Wisconsin. On the other hand the British output, which is now about 14,000,000 tons, is considerably less than it was some twenty years ago. At present, about one-third of the iron ore utilised in the production of pig-iron in this country consists of imported ore, derived almost entirely from Spain, and of a generally richer character than British ore.

PRODUCTION OF PIG-IRON AND STEEL IN THE UNITED STATES AND THE UNITED KINGDOM.

The quantities of pig-iron and steel produced annually in the United States have been since 1890 generally greater, and are at present considerably greater, than in the United Kingdom. This predominance is more marked in the case of steel, the proportion of pig-iron made into steel being lower here than there. With modern methods of handling by mechanical

* See Report of U.S. Consul at Rouen, November 28th, 1901.
† See American Special Consular Reports, Vol. XXI., pt. 1.

means, and the more complete adoption of labour-saving devices in the United States than in this country, it is said now to be possible in the States to have the raw ore that has been charged into the blastfurnaces smelted into pig-iron, thence bessemerised into steel ingots, and finally transformed into a finished rail within a period of twenty-four hours.*

In the use of labour-saving devices in the iron and steel trades, and the economies that result from manufacture on a large scale, there is very little doubt that America surpasses us. In the capacity of the furnaces employed, the difference between the American methods and our own is certainly very considerable. In both countries the older small blastfurnaces are being continually replaced by larger and more modern erections, but in the United Kingdom, even in the last five years of the century, the average output per furnace in blast only amounted to 23,000 tons per annum. The much greater advance made in this direction by the United States may be gauged from the fact that, according to the report of the Industrial Commission,† the production of pig-iron in 1900, which amounted to 13,789,000 tons, was the output of only 223 furnaces, giving an average annual output per furnace of 62,000 tons.

The production of pig-iron in the United States increased rapidly in the second half of the eighties, and again in the second half of the nineties. It will be interesting to put side by side the total quantities of iron and steel produced in the United States and in this country at different periods :—

Years.	Production of Pig-Iron.		Production of Steel.	
	United States.	United Kingdom.	United States.	‡United Kingdom.
	Tons.	Tons.	Tons.	Tons.
Average of 1884–1885	4,071,000	7,614,000	1,631,000	‡
„ 1889–1890	8,403,000	8,114,000	3,138,000	3,575,000
„ 1894–1895	8,052,000	7,565,000	5,263,000	3,061,000
„ 1899–1900	13,705,000	9,191,000	10,414,000	4,895,000

The above figures hardly require any comment. Starting from a lower production of iron and steel in 1884-5 the United States were already our equals five years later, and now far surpass us. The superiority is more marked in the case of steel than in that of iron. Taking the figures for production in connection with the estimated population of the two countries, it appears that in the years 1899-1900, the production per head of iron was still not quite so great, but the production per head of steel was greater in the United States than in the United Kingdom. The figures are as follows :—

	United States.	United Kingdom.
Production per head of Pig-Iron ...	0·18 tons ...	0·23 tons.
„ „ Steel	0·14 tons ...	0·12 tons.

* See Final Report of United States Government Industrial Commission, p. 247.
† „ „ „ „ „ „ p. 247.
‡ The particulars, compiled from statistics published by the British Iron Trade Association are taken from the Seventh Annual Abstract of Labour Statistics of the United Kingdom, where they are not carried back further than 1885, when the output amounted to 1,888,000 tons.

Among the various iron and steel products, special mention may be made of iron and steel rails, of which the American production now amounts to over 2,250,000 tons—the production in this country never having reached 1,250,000 tons, and at present being less than 1,000,000 tons. Although only a small fraction of the rails rolled is actually exported, the quantity exported still being less than in the case of the United Kingdom, the growth in the exports (especially of steel rails) in recent years has been very rapid. This has been especially marked in the last five years, as will be seen from the following statement:—

Exports of Steel Rails from the United States.

Year ended June 30th.	Quantity.	Value.
	Tons.	£
1896	22,263	113,000
1897	107,991	517,000
1898	229,783	961,000
1899	266,109	1,104,000
1900	341,656	1,920,000
1901	373,688	2,259,000

ELECTRICAL MACHINERY AND APPARATUS.

Under the head of machinery, special interest attaches to electrical machinery. Unfortunately, this class of machinery was not separately distinguished in the export returns before the year ended June 30th, 1898, when the exports were valued at £428,000. Two years later they had increased to £904,000, and in the year ended June 30th, 1901, they had further increased to £1,211,000. Even allowing, therefore, for the increase in prices, there is evidence here of a considerable increase in the quantity exported. The smaller kinds of electrical apparatus, such as telegraph and telephone instruments, are not separately distinguished in the export returns. The group of instruments and apparatus for scientific purposes, under which they are (rather unfortunately) included, is rapidly increasing in value, but the figures for such a very mixed group are hardly worth giving. No statistics are available for the production of electric machinery and apparatus in the United States, but the readiness with which electrical transport and electrical methods of power transmission have been adopted in that country is well known. Both these applications of electricity are probably only in their infancy, and when it is recollected that it is not long since it was troublesome to handle a current of 1,000 volts, whilst electrical engineers are now able to control 20,000 to 30,000 volts on long lines, it is difficult to set bounds to the extent to which in the future high tension electricity may be utilised for the transmission of power. It is to be feared (though it is difficult to adduce figures in support of the statement) that engineers, as well as members of the manufacturing community, are far more alive in the United States than here to the possible economies resulting from the employment of electrical appliances.

It would take too long to review here in detail the growth in particular sections of the iron and steel trades. In order, however, to escape the charge of giving too favourable a picture of American industry, it is desirable to refer to two branches of manufacture connected with the

metal trades, in which the United States appear to be unable at present to compete with us in neutral markets. The first of these, the tinplate trade, affords also an interesting indication of the way in which manufacture for the home market may be artificially stimulated by the operation of a protective tariff. The case also deserves special notice on account of the very serious blow dealt to one of our own industries.

TINPLATE MANUFACTURE.

Previous to 1890 the United States produced practically no tinplates and sheets, and the industry owes its existence almost wholly to the protective tariff placed upon these goods in 1890, which came into operation on July 1st, 1891. The growth of the industry since that date has been very remarkable, and has resulted in this country to a large extent losing its best customer. The following statistics of production in, and imports into, the United States are taken from the Annual Statistical Report of the American Iron and Steel Association. The years to which they relate are calendar years:—

Production of Tinplates in the United States.

	Tons.
Last six months of 1891	999
Average of 1894-1895	93,963
Average of 1899-1900	331,770

Imports of Tinplates into the United States.

	Tons.
Average of 1889-1890	330,373
,, 1894-1895	217,306
,, 1899-1900	59,651

Thus, although the actual consumption of tinplate in the United States has not increased to any great extent, the quantity of plates imported has been reduced to about 60,000 tons per annum. This remaining quantity is made up almost entirely of "drawback" plate, *i.e.*, of tinplate on which a drawback amounting to 99 per cent of the duty is paid by the United States Government on its being used in the manufacture of articles (chiefly oil-cans and tins for preserved meat and fruit) exported. The fact that plates are still imported on these conditions indicates that tinplates of foreign manufacture on which the duty is remitted continue to be cheaper than those of domestic manufacture. The United States, in fact, cannot yet (whatever may happen in the future) compete with this country in neutral markets in the manufacture of tinplates, as is also evident in the small quantity which is exported. In the three financial years ended June 30th, 1901, the total export only amounted to 840 tons, or an average of 280 tons per annum. About three-quarters of this export took place in the last of the three years included.

Unfortunately, no information is available with regard to production in the United Kingdom, but the following short statement with regard to the exports is of considerable interest:—

Exports of Tinplates and Sheets from the United Kingdom.

Years.	To the U.S.A.	To Other Countries.	Total Exports.
	Tons.	Tons.	Tons.
Average, 1889–1890	328,899	97,324	426,223
,, 1894–1895	224,978	135,046	360,024
,, 1899–1900	60,795	203,830	264,625

The figures showing exports to the United States are somewhat in excess of those given above showing total imports into the United States (which are and have been almost entirely derived from this country), but the difference is not very large and the figures are in general agreement. It will be seen that much of the loss due to the closing of the American markets against us has been made good by markets having been found elsewhere, but in spite of this the blow to the trade has been very severe.

SHIPBUILDING.

The second trade, now for the most part a branch of iron and steel manufacture, to which I desire to especially refer, in which the United States are not so far able to compete with us, is that of iron and steel shipbuilding. The number of ships built in any country fluctuates so much from year to year that it is only over fairly long periods of time that a really representative average output can be obtained. During the last decade of the nineteenth century the total tonnage of vessels (other than war vessels for H.M. Government) launched in the United Kingdom amounted to 7,658,000 tons, whilst in the United States the total for a similar period (the 10 years ended June 30th, 1901) amounted only to 2,471,000 tons, of which no less than 1,027,000 tons were built on the Mississippi and its tributaries and the Great Lakes, mainly (presumably) for internal navigation—less than 1,500,000 tons, therefore, consisting of ocean-going vessels. The tonnage of vessels constructed for or sold to foreigners is only trifling as compared with the tonnage constructed for or sold to foreigners in this country. The last five years of the period above referred to certainly show a comparison much more favourable to the United States than does the whole decade, nevertheless there is this curious fact connected with the shipbuilding industry of the United States. It is almost exclusively for internal navigation and for the coasting trade, whilst the amount built for foreign trade is insignificant. During the last decade of the century the tonnage registered for the foreign trade was only 207,000 tons. In these circumstances, and seeing that American registry is in general denied to foreign-built ships, it is not surprising that only about one-fifth of the tonnage entered and cleared at ports in the United States in the foreign trade is under the American flag,* a proportion far lower than before the Civil War. On the other hand, the coasting trade of the United States is confined by statute to vessels constructed and owned in that country, so that it appears that practically all the shipbuilding of the United States is of that class from which all competition has been shut out by the legislature. There is no doubt that at present it costs more to construct a first-class steamship in American yards than in British yards, although it has been stated that the difference is rapidly decreasing.

Although the progress made in the manufacturing industries of the United States is nowhere so noticeable as in the metal trades, there are two groups of trades of considerable interest to this country in which remarkable progress has been made of late years in the United States, and which therefore appear to deserve a few words. These are cotton manufacture and the boot and shoe trade.

COTTON MANUFACTURE.

As regards the former, the value of the exports of cotton manufactures from the United States at the end of the nineteenth century has already been given as amounting roughly to £4,700,000 per annum. This is still very small compared with the value of the manufactures exported from the United Kingdom, which in the last two years of the century averaged (including yarn) over £68,500,000. At the same time it represents an increase of £1,600,000 in five years, and £2,400,000 in ten years, and is worthy of some consideration. Whilst the United States

* If the trade on the Great Lakes between the United States and Canada is excluded the proportion under the American Flag is even lower, viz., about 16 per cent.

are not likely to compete seriously with us in the near future as exporters of cotton goods, it should not be forgotten that the industry is growing very rapidly, so that at the present moment the amount of raw cotton taken by the United States mills is probably greater than that taken by our own, whilst the number of spindles has certainly increased of late years faster than in the United Kingdom.

BOOT AND SHOE MANUFACTURE.

As has been already stated, the value of leather and leather manufactures exported from the United States has increased from an average of £2,500,000 ten years before, and £3,500,000 five years before, to £5,500,000 at the end of the nineteenth century. The greater part of this sum represents exports of leather itself, but the growth in the export of one particular class of leather manufactures, viz., boots and shoes, has been far more rapid. As regards leather, we cannot of course hope to compete with the United States. We are and always have been large importers of leather, but in the case of boots and shoes the United States are our competitors both in the home and foreign markets. The figures with regard to the exports of boots and shoes during the same three periods for which figures have been given for the exports of other articles are as follows:—

Export of Boots and Shoes from the United States.

Average, three years ended June 30th,	1891.....	553,000 pairs.
,, ,, ,,	1896.....	835,000 ,,
,, ,, ,,	1901.....	2,814,000 ,,

These exports are still far from attaining the proportions reached by our own export trade; nevertheless, the growth indicated is very rapid and our exports are meanwhile almost stationary or declining, whilst our imports have been increasing, especially of late years. Of these a growing proportion, although still not a very large one, is derived from the United States. Belgium and France both continued up to the end of the century to send us more boots and shoes than the United States, but the growth of our American imports has been so very rapid that if it continues to develop in anything like the present proportions it will not be long before the major portion of our imports is derived from that source. The main facts with regard to recent changes in our imports and exports are sufficiently indicated in the following short statement:—

Year.	No. of pairs exported from the United Kingdom.	No. of pairs imported into the United Kingdom.	
		From all Sources.	From U.S.A.
Average, 1889–1890	8,170,000	1,199,000	12,000
,, 1894–1895	8,059,000	1,485,000	144,000
,, 1899–1900	7,402,000	2,751,000	544,000

In 1901 our export trade improved slightly, 8,143,000 pairs being exported. On the other hand, in our home market we had to face the competition of 3,570,000 pairs—an unprecedented number—of which no less than 1,028,000 pairs came from the United States.

FOREIGN CUSTOMERS OF THE UNITED STATES AND UNITED KINGDOM.

The principal branches of manufacture of which the United States are exporters have now been briefly considered, but the question may naturally be asked whether the effect of this new rivalry can be traced in any marked change in the world's markets. To this question the following table is an attempt to supply an answer :—

Country.	Average of 1894–1895.			Average of 1899–1900.		
	Proportion of Imports derived from		Average Value of Imports from all Countries.	Proportion of Imports derived from		Average Value of Imports from all Countries.
	United States.	United Kingdom		United States.	United Kingdom	
	Per cent.	Per cent.	Thousand £s (000 omitted).	Per cent.	Per cent.	Thousand £s (000 omitted).
*Russia	7	22	56,481	7	19	66,919
Norway	4	29	11,897	6	29	17,254
Sweden	3	38	19,318	2	32	28,881
Denmark	3	20	19,805	15	20	28,302
Germany	12	13	201,475	17	12	281,217
Holland	8	17	121,028	15	15	161,847
Belgium	8	11	65,099	12	14	89,520
France	8	13	151,406	10	14	184,322
Switzerland	4	5	37,219	5	5	49,816
Portugal	17	27	8,494	15	33	12,416
Spain	11	19	32,866	11	24	40,637
Italy	10	21	45,639	12	21	64,135
Austria-Hungary	5	11	59,269	8	9	68,859
*Greece	3	28	4,391	3	24	5,689
Bulgaria	$\frac{2}{10}$	21	3,365	$\frac{4}{10}$	19	2,130
Roumania	$\frac{2}{10}$	20	14,534	$\frac{5}{10}$	17	11,005
Total Principal European Countries.	8	15	852,286	12	15	1,112,949
Egypt	1	34	9,057	2	39	13,130
Mexico	46	19	6,429	49	18	11,219
Chili	7	47	9,792	9	37	8,804
Uruguay	7	32	5,123	9	27	5,169
Argentina	11	39	18,788	13	36	23,033
China	4	19	27,957	8	17	37,883
Japan	8	35	12,981	19	22	26,454
†India	2	74	51,352	2	68	62,091
Canada	49	32	22,433	61	25	34,403
‡Australia	3	38	43,098	7	35	66,276
New Zealand	6	60	6,594	9	62	9,693
Natal	5	73	2,353	8	66	6,706
Cape Colony	5	81	15,341	10	67	19,443

* In these cases the average for 1898-9 is given in the last three columns of table, figures for 1900 not being available at time of compilation.

† The years are financial years ended March 31st. The figures given relate to imports by sea only.

‡ Trade between the different States of the Commonwealth is included. If purely external trade had been taken, the proportion of imports from the United Kingdom would have been considerably larger.

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